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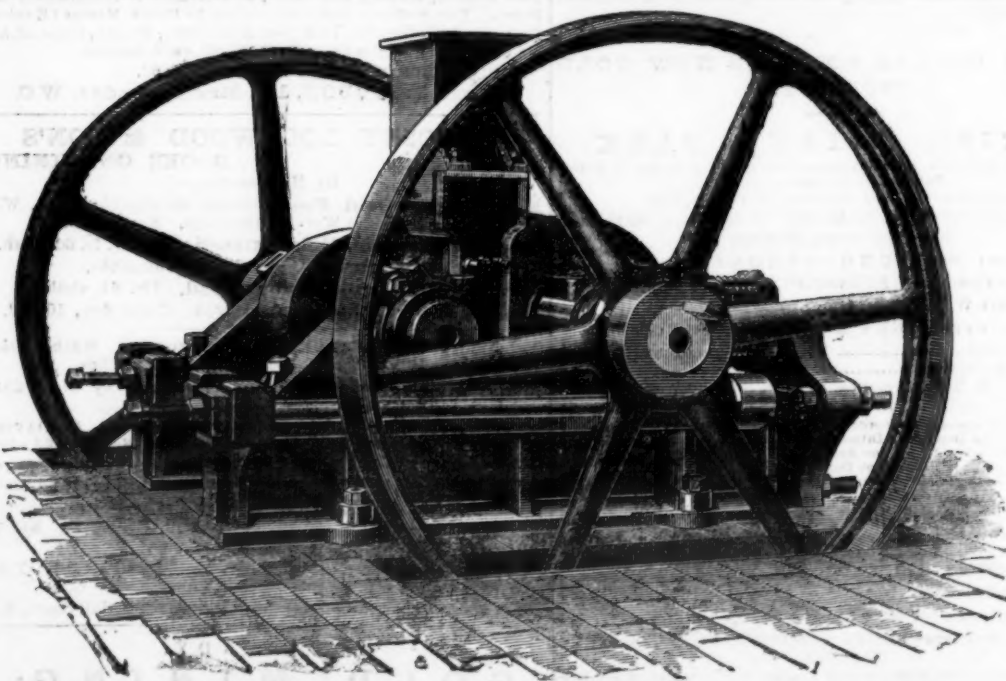
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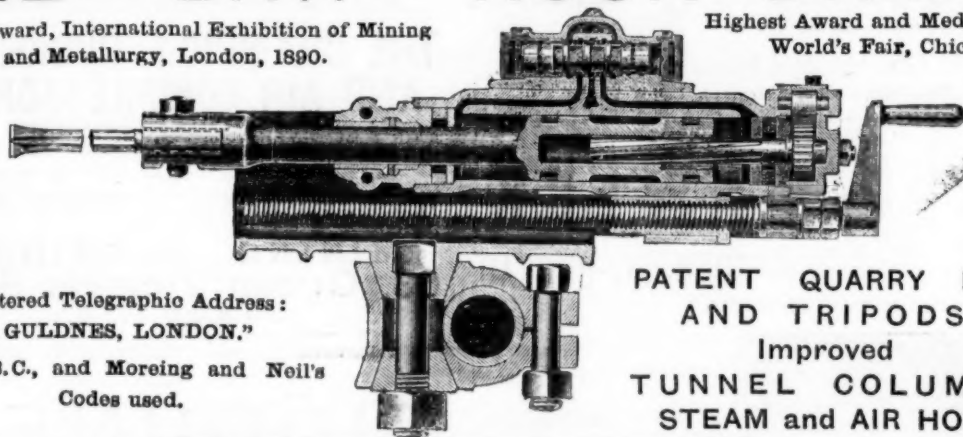
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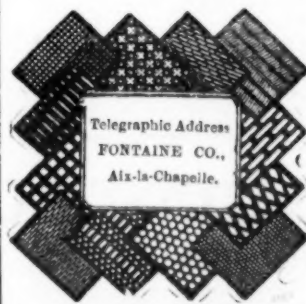
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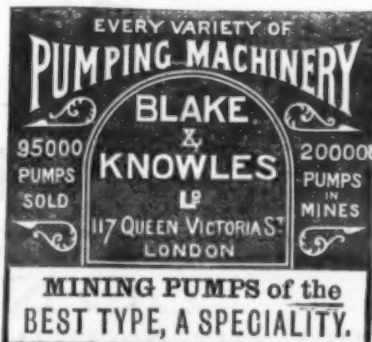
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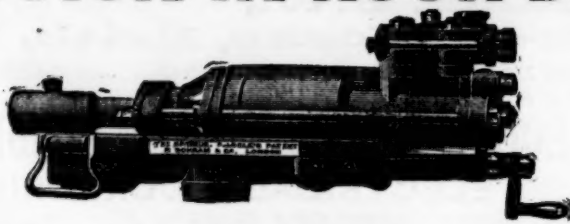
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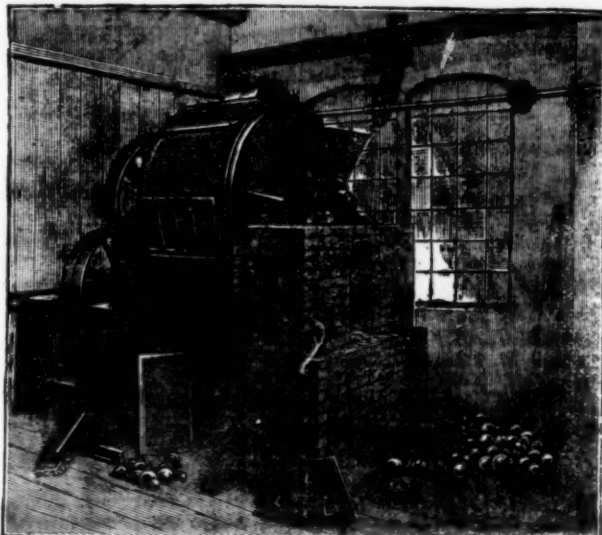
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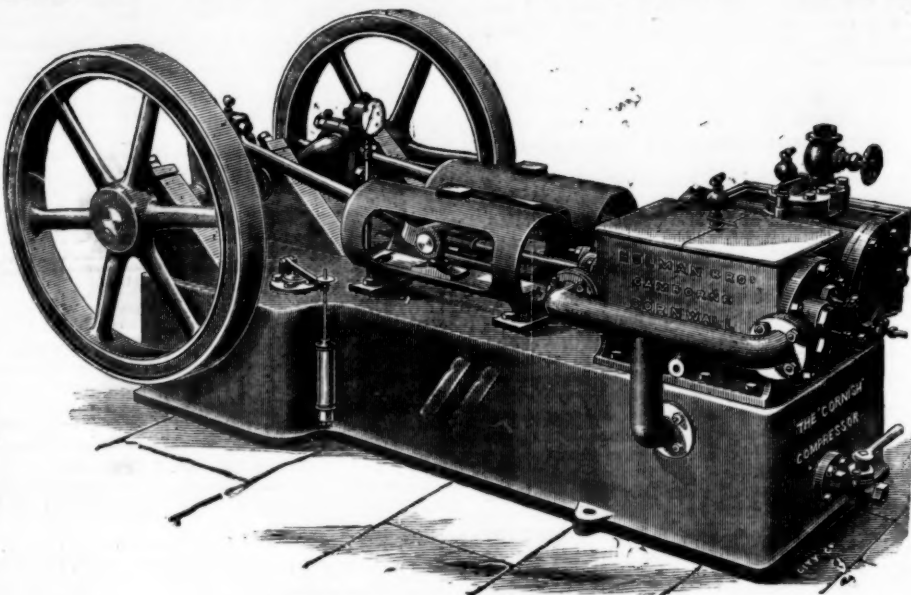
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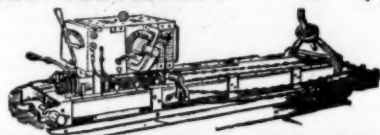
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**NEW PATENTS.**

LIST OF APPLICATIONS for New Patents relating to Mining Metallurgical, Engineering, Railway and kindred matters, specially compiled from official sources for the "Mining Journal" by Messrs. Rayner and Company, Patent Agents, 37, Chancery Lane, London, W.C., who will forward all information regarding them free on application.

- 2712 Joseph Pimbley and William Andrew Rothwell, 17, St. Ann's Square, Manchester.—Improvements in steam superheating apparatus for steam generators.—February 10.
- 2713 Emil Josef Maria Serravallo and Paul Gredt, 28, Southampton Buildings, Chancery Lane, London.—Process for the direct production of iron and steel and other metals from their ores.—February 10.
- 2714 Edward Main, Junior, 17, St. Ann's Square, Manchester.—Improvements in steam generators.—February 11.
- 2715 Joseph Baxter Torrey, 17, St. Anne's Court, Wardour Street, London.—Improvements in or relating to the extraction of gold, silver, and other metals from ores and the like.—February 11.
- 2716 James Luther White, 1, East Parade, Leeds.—Improvements in or relating to hollow blast rock furnaces.—February 11.
- 2717 James Cadoux Hudson 75, Upper Ground Street, Blackfriars Road, London.—Improvements in water tube boilers.—February 11.
- 2718 John Roger, 31, High Holborn, London.—Improvements in ore crushers.—February 11.
- 2719 Wallace Fairweather, 61, St. Vincent Street, Glasgow.—Improvements in the manufacture of wrought metal headers for sectional steam generators.—February 12.
- 2720 Wallace Fairweather, 61, St. Vincent Street, Glasgow.—Improvements in the manufacture of wrought metal headers for sectional steam generators.—February 12.
- 2721 Robert Bayles Armstrong and George Hunter Robinson, 28, Warwick Street, Heaton, Newcastle-on-Tyne.—Improvements in distribution slide valves for steam or other fluid pressure engines.—February 13.
- 2722 Charles Ernest Alger, Loughton House, Palmyn Place, Newport, Mon.—An improved furnace and boiler for heating apparatus.—February 13.
- 2723 Alfred William Knott, 312A, Old Kent Road, London.—An improved process for generating steam in boilers.—February 13.
- 2724 James Frederick Phillips, Chapel Street, Lanes.—Improvements in the means for attaching the lashing chains of coal tubs to haulage ropes in collieries and for other similar purposes.—February 14.
- 2725 Stephen Wilkes and James Oswald, 128, Colmore Row, Birmingham.—An improved tool or appliance for bending metallic tubes.—Feb. 14.
- 2726 Ernest Bailey and John Dunn, 10, Lorne Terrace, Maryhill, Glasgow.—Improvements in electrical furnaces for volatilising metallic and other ores.—February 14.

**SPECIFICATIONS PUBLISHED.**

2717, Gatchell, chemical works, furnaces, &c., 1895; 2357, Stanley, explosion engines, 1895; 4018, Lufford and others, furnaces, 1895; 5142, Friederici, boiler furnaces, 1895; 6106, Watts and Sandison, propelling steam ship engines, 1895.

The above specifications published may be had of Messrs. Rayner and Co., 37, Chancery Lane, London, at 10d. each, including postage.

**JOINT-STOCK COMPANIES.****NEW REGISTRATIONS.**

THE following are among the joint-stock companies registered at Somerset House since our last notice:—

**Grierson's Gold Mines (Limited).**—Registered February 13 by Lettley and Hart, 18, Devonshire Square, Bishopsgate, E.C., with a capital of £1 0 000 in 10s. shares. Object: To adopt and carry into effect an agreement (referred to in Clause 3 of the company's Articles of Association) expressed to be made between the New Hoover Hill Gold Mining Company (Limited) and James Fraser, the liquidator thereof, of the one part and this company of the other part, and a second agreement, made December 13, between W. H. Dickson of the one part and H. Aker of the other part, to acquire any gold mines, mining, water, and other rights, grants, leases, claims, concessions, options of purchase, metalliferous land, &c., in the United States of America, Australia, or elsewhere, to develop and turn to account the same in such manner as the company shall see fit, and to carry on the business of a mining, milling, smelting, and metallurgical company in all its branches. The first directors—of whom there shall be not less than three nor more than six—are to be elected by the signatories. Qualification £250. Remuneration £100 per annum each and 5 per cent. of the amount available for distribution as dividend, the same to be divisible; Chairman to receive £50 extra. Registered office, 44, Coleman Street, E.C.

**Cambridge Contract Company (Limited).**—Registered February 13 by R. Ogilvie, Finsbury Pavement, E.C., with a capital of £10,000, in £1 shares. Object: To undertake financial or other operations in the United Kingdom or elsewhere. Table A mainly applies.

**Hannan's Venture Syndicate (Limited).**—Registered February 13 by Maddisons, 1, King's Arms Yard, E.C., with a capital of £10,000, in £1 shares. Object: To enter into an agreement with T. E. Curtis, and to carry on the business of an exploring, prospecting, and mining company in all its branches. The directors are to be elected by the signatories. No qualification specified. Remuneration to be fixed by the company.

**Mennies Golden Rhine Gold Mines (W.A.) (Limited).**—Registered February 13 by Edwin Andrew and White, 27, Clements Lane, E.C., with a capital of £100,000, divided into 100,000 shares of £1 each. Object: To acquire any mines, mining, water and other rights, grants, leases, claims, concessions, options of purchase, protected areas, ores, minerals, tailings, alluvial deposits, metalliferous land, forests, &c., in West Australia or elsewhere; to search for prospect, excavate, quarry, dredge, win, purchase, or otherwise ore, &c.; to lease, settle, improve, colonise, and cultivate land in West Australia or elsewhere, and to carry on the business of a mining, milling, smelting, and metallurgical company in all or any of its branches. The first directors—of whom there shall be not less than three nor more than five—are to be elected by the signatories. Qualification, £200. Remuneration, £120 per annum and a percentage of the profits after payment of 20 per cent. dividend, the same to be divisible. Registered office: Worcester House, Walbrook.

**London and New Zealand Exploration Company (Limited).**—Registered February 13 by Carpenter and Thompson, Broad Street House, E.C. Capital £100,000, divided into 100,000 shares of £1 each (1500 of which are deferred shares). Object: To acquire any mines, mining, water and other rights, grants, leases, claims, concessions, options of purchase, metalliferous land, &c., in New Zealand or elsewhere, and to develop and turn to account the same; to search for, prospect, and explore any grounds supposed to contain minerals, &c.; to seek for and obtain information as to mines, mining, mining claims, districts, and localities, and to carry on in all or any of their respective branches

the businesses of miners, storekeepers, farmers, planters, cattle breeders, stock raisers, carriers, timber merchants, &c.

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The date given is that by which tenders must be delivered, in nearly all cases further information can be obtained on application at the addresses given. In applying for such the name of "The Mining Journal" should be mentioned as the original source of the information, concerning which further particulars are required.

**HOME CONTRACTS.**

**Railway Stores, March 3 (Sofa).**—For the supply of 2650 locomotive boiler tubes and 10 steam heating pipes. Also, on March 10, the supply of 22,000 kilograms of mineral oil for locomotives, 11,300 kilograms of coal oil for lighting, and other stores, all for the Bulgarian State Railway. Particulars from the Ministry of Works and Communications, Sofia, Bulgaria.

**Iron and Steel, March 3 (London, W.).**—For the supply of about 395 tons of steel bridge girders and other iron and steel work, for the Great Western Railway Company. Plans and specifications may be seen, and forms of tender and bills of quantities obtained at the office of the Engineer at Paddington Station between 10 a.m. and 4 p.m. Tenders, addressed to Mr. G. K. Mills, secretary, Paddington Station, London, and marked outside "Tender for Girder Work," will be received on or before March 3.

**Pipes, March 3 (Hawthurst, Kent).**—For the supply of about 500 yards of cast iron main pipes, 8 inches diameter, socket and spigot, minimum weight 2½ cwt. per 9 feet length, and to withstand a pressure of 75 lbs. per square inch—price quoted should include free delivery to Hawthurst Station, S.E.E.—for the Hawthurst Gas Company. Tenders should be sent to Mr. George Morris, secretary, Gasworks, Hawthurst, by March 2.

**Widening Bridge, March 4 (Bishop Auckland).**—For widening Princess Street Bridge, Bishop Auckland, for the North-Eastern Railway Company. Plans and specifications may be seen at the office of the company's engineer, Mr. W. J. Cudworth, Darlington. Sealed tenders, endorsed "Tender for Widening of Bridge," and addressed to the secretary, must be delivered at his office, York, by noon on March 4.

**Coal, April 13 (Bucharest).**—For the supply of 5547 tons of coal and 630 tons of coke. Address the Roumanian Ministry of War, Bucharest.

THE MESSAGE OF PEACE is always appreciated and respected by all true men, for many of us hope the time is not far distant when it may be universally adopted by all nations. When this comes to pass, happiness and prosperity will be the rule and not the exception. In the meantime, Holloway's Pills will do much to help. Men have largely helped to make foreign nations understand that Englishmen delight in alleviating pain and suffering. These wonderful remedies have been blessed in many lands for the relief they have afforded and the cures effected. They are specially adapted for all complaints affecting the liver, stomach, and kidneys, and at this season no family should be without a supply.



## EXPEDITION IN SEARCH OF COAL IN THE DISTRICTS IMMEDIATELY SOUTH OF THE ZAMBESI.

(Concluded from page 238.)

**NATIVE LABOUR.**—The route of the expedition lay through a country much of which had never been before visited by a white man, consequently the native was seen in his most unsophisticated condition. Those who visited had until lately been slaves of the Matabele, who for years had exacted taxes of grain and salt, and on the flimsiest pretext raided and burnt their kraals, killed the men, and carried away the women and children into slavery. These circumstances have produced a poor and timid race, who lived in the meanest manner, cultivating nothing but the little grain they required for their immediate wants. Already the destruction of the Matabele power is having its results, as in almost every kraal new and better huts were being erected, and the people were evidently coming out into the open from their hiding places and settling down. It may be well, for the information of future travellers, to notice the more important groups of kraals on the route individually. Dovers, scattered huts in the bush, the chief a feeble, ailing old man, people quite friendly and willing to trade, but had very little to sell except Kaffir corn and fowls. Gowe, situated on the Sanyati River, a number of very small kraals scattered along the river bank; have plenty of corn, fowls, eggs, sweet potatoes, and tobacco. Gorodoma, a large number of small kraals, at which the same provisions can be obtained. Sera, the chief, was ill and could not be seen; but one of his indunas, a most intelligent man, named Vumbainhama, accompanied the expedition from the kraals to Salisbury, and was, with his men, of the greatest service. They returned well pleased, and loaded with what were to them very valuable presents. At the kraals plenty of the usual provisions were to be obtained. Mora has his kraals on both banks of the Zambesi, but they are poorly off, notwithstanding their excellent position, and the chief appeared to have little authority over his men, of which there did not appear to be many, and those of a very poor type. Parumumumu, on the Marowa River east of Mafungibusi hills, by far the best kraals and the finest set of people met with by the expedition. The chief is a rather young man of good physique and superior intelligence. Umjinga Kraals, on the right bank of Sanyati River, are much scattered; the people seemed to be very timid, and had not much to trade. The other kraals to the eastward in Lomagundi's country are well known and do not need description. Generally, the natives appeared to consider that the destruction of the Matabele power by the white men only meant the transfer of themselves from one master to another, and when the men brought to Salisbury by the expedition return to their kraals with payment for their work, which though promised, they hardly expected to receive, others will probably come in to work, and acquire the like good things; and so, gradually, the desire of European things will spread, and these Kaffirs, who hitherto have worked only from fear of their dread masters, the Matabele, will come to work for the white men for what they can get from them. Much depends upon the class of white men sent amongst these people in the beginning; if they are visited by the ordinary tramp, who robs and abuses them, and insults their women, there will be trouble; but dealt with by sober, level-headed men, they will soon become a working population. Some method of instructing these people regarding the ground produce which they could cultivate with advantage and profit would be most desirable. At present a little Kaffir corn and beans, and occasionally sweet potatoes, are all that they produce, although the soil in most parts, and especially on the terraced banks of the Zambesi, is admirably fitted for the cultivation of any tropical productions. Very few of the natives either hunt or fish, and the few that do have the rudest appliances, though there are countless buffalo in the woods, and the rivers teem with hippopotami and fish.

**Tsetse Fly.**—This deadly insect to all civilised animals, such as horses, oxen, mules, donkeys, and dogs, was frequently met with by the expedition, but very locally. To the eastward of Dovers's Kraals very few fly were observed; from thence to the Mafungibusi hills they were found plentifully, and in places throughout the whole route to the Sanyati River at Umjinga, and were not entirely absent until Mazimbakupa's was reached. Most probably, the fly rapidly shifts its district at different seasons of the year, and apparently it always retires before civilisation. At some of the kraals where fly was plentiful the natives keep goats and dogs with impunity, and probably would also keep cattle if they could get any, but they say that only the animals born in a fly district can live in it. It is time that some investigations into the action of this fly were undertaken by a competent authority with a view to discovering some means of rendering it harmless.

**Coal.**—The primary object of the expedition was to inspect and report upon a discovery of coal and salt at Serai's Kraals which had been reported by Mr. W. L. Armstrong, and also to test the correctness or otherwise of theories put forward by the writer of this report that from geological reasons prospective coal-bearing rocks would be found to extend far to the westward along the Zambesi from the deposits opened up in the Portuguese territory at Teta. These anticipations have been fully realised, and the expedition has discovered a vast extent of prospective coal-bearing rocks, extending from the Sanyati to the Songwe River, and from the fact that these rocks cross the former river to the north-west, and that the contours of the hills in that direction are of the sandstone type, it is to be inferred that the same will extend in that direction. Also the whole geological structure of the country points to the fact that the same rocks should be found to extend—probably intermittently—far to the west and north.

The prospective coal-bearing rocks are a series of sandstone and conglomerate beds, with beds of shale and coal as already described, horizontal, or generally so in stratification, and in places pierced and indurated by dykes of greenstone, a formation generally analogous to the coal measures of the Transvaal and Natal, to the coal of which countries that found by the expedition bears a strong resemblance. At no point was a really good contact between the carbonaceous rocks and the sandstones come upon by the expedition. At all the points where large outcrops of the former were discovered—notably at those in the Marowa River bed near Parumumumu, and at those near Serai's—the carbonaceous beds have been denuded of their original cover, and then again covered by recent alluvial deposits into which the present rivers have cut their beds, but as the coal and shale beds are still in their original horizontal position no line of unconformability has been developed, except at one point in the little stream bed of the Katzansa at Serai's, where the outcropping beds of coal dip to the north-west at an angle of from 5 to 10°, but this disturbance appears to be very local. The thickness of the carbonaceous beds was nowhere ascertainable, but is certainly very considerable, and probably very variable, as the deposits are probably lenticular in form, and where not denuded will be found overlaid as well as underlaid and interbedded with the sandstone series.

It is not, of course, to be supposed that workable coal, or indeed coal at all, will necessarily be found throughout the whole area covered by the sandstone series, but this area may be fairly called prospective coal-bearing ground, and to look for coal beds amongst the crystalline schists and slates of the gold-bearing series of rocks, or in the granite and gneiss, will be certainly futile, so the area of search is now definitely limited, and it now remains to locate within that area points at which workings may be opened. The extent of prospective coal-bearing area is divided into coal-prospecting areas, one of which has been selected by the Exploring Company under their arrangement with the British South Africa Company, and the remainder are now open to allotment by the latter company for exploration and the location of coal mines.

In order to make the work complete a similar expedition to that now under report should be sent to examine the districts north-west of the Sanyati River, and also westward towards Pandamatenga, the Victoria Falls, and Batonga country, where most probably large extensions of the area of prospective coal-bearing rocks will be found.

**Iron.**—Considerable beds of red and brown hematite occur in the coal-bearing series of rocks, and a deposit of the carbonate, spathose iron, of small extent, is observable near Serai's Salt Pan. The manufacture of metallic iron from the oxides is carried on by the natives on a small scale, and a good malleable iron is produced.

**Salt.**—At Serai's Salt Pan there is a spring of saline water apparently issuing through the coal beds, which, flowing over the surface, saturates and covers the sand and clay with a deposit of salt, a sample of which is sent to London with coal samples for examination. This deposit the natives scrape up and dissolve in water, pouring the brine over faggots of brushwood, on which the salt crystallises, and from which it is collected for use. Another salt pan of similar description occurs north of the Shigora Kraals, between the foot of the Mafungibusi Hills and the Sanyati River.

**Lime.**—The only limestone deposit visited by the expedition was that at Sincio, which has already been described.

**Alkalies.**—A coating of white alkaline matter is frequently found on the dried surface of swampy places and on the sands of the river beds; it also collects in small masses in some of the hollows of the rocks. This appears to be mostly nitrate of potash—nitro—and its deposition is probably due to the lixiviation of the ashes of burnt plants by water and subsequent evaporation. The quantities hitherto found have been too small to be of commercial value.

## MINING AND METALLURGY OF QUICK-SILVER IN MEXICO.

By JAMES MACFARLAN.

### Part VIII.

(Concluded from page 234.)

TABLE IV.—FURNACE COST SHEET.

Per quintal of Quicksilver produced.

Period ending—	June, 1892.	October, 1892.	June, 1893.	December, 1893.	June, 1894.
Foremen and watchmen ..	1-90	1-62	0-78	0-55	0-66
Labour .....	8-63	7-11	2-86	3-43	3-48
Fuel .....	7-87	0-51	2-65	3-63	4-14
Light .....	—	0-09	0-03	0-04	0-04
Repairs .....	—	0-42	0-49	0-04	0-14
Flasks .....	1-05	0-97	1-11	0-72	0-67
Carriage of Hg to railway ..	0-49	0-27	0-27	0-08	0-27
Lime .....	—	0-82	0-78	1-03	1-12
Sundries .....	0-18	0-75	0-06	0-09	0-35
General expenses .....	11-03	9-48	8-28	7-81	8-73

Total per quintal of Quicksilver .....

TABLE V.—EXCAVATION COST SHEET.—DEVELOPMENT.

Per Cubic Metre.

Period ending—	June, 1892.	October, 1892.	June, 1893.	December, 1893.	June, 1894.
Foremen and watchmen ..	0-25	0-00	0-27	0-44	1-90
Labour .....	2-26	0-69	1-52	2-78	5-76
Extraction of rubbish .....	0-08	0-04	0-69	0-93	0-14
Explosives .....	0-42	0-43	0-25	0-70	0-37
Light .....	0-11	0-06	0-16	0-24	0-11
Charcoal .....	—	—	0-02	0-03	0-05
Timbering .....	0-34	—	0-19	0-28	0-05
Waste on tools .....	0-01	—	—	0-01	—
Sundries .....	—	—	0-04	0-04	0-10
General expenses .....	3-63	1-22	2-06	4-23	4-41

Total per cubic metre .....

Cubic metres excavated ..

TABLE VI.—VARIOUS DATA.

Period ending—	June, 1892.	October, 1892.	June, 1893.	December, 1893.	June, 1894.
Quicksilver produced in lb.	32,445	31,299	134,058	120,033	199,136
Number of flasks filled ..	432-32	417-32	1787-42	1600-28	2655-00
Number of flasks sold .....	374	423	1526	1519	2748
Net price per flask .....	\$48-06	\$47-68	\$47-88	\$52-61	\$57-23
Net cost (not including general expenses) .....	\$27-16	\$31-41	\$11-26	\$12-71	\$19-73
General charges .....	\$15-02	\$14-20	\$6-68	\$10-66	\$10-11
Net cost (including general expenses, but not cost of development and exploration) .....	\$42-18	\$45-61	\$17-94	\$23-37	\$29-84
Tons of ore treated, per quintal of Hg produced ..	3-36	4-06	1-61	1-38	2-05
Total flasks made up June, 1894 ..	—	—	—	—	6,892
Value at (any) £7 per flask ..	—	—	—	—	£48,244

TABLE VII.—Furnace Cost Sheet for period from August, 1890, to June, 1891, showing the working of Native Gallery Furnace per ton of ore (of 2000 lbs.).

	Cost per ton.
Labour .. .. .	\$2-29
Fuel .. .. .	3-04
Lime .. .. .	0-86
Retorts (clay) .. .. .	0-42
Repairs .. .. .	0-19
General expenses .. .. .	4-56
	\$10-86
Tons of ore treated .. .. .	228½
Flasks filled .. .. .	95-36
Tons of ore per flask .. .. .	2-39
Percentage of mercury obtained from ore ..	3-17
Furnace cost per flask (not including mining expenses) .. .. .	\$25-98
Net price realised .. .. .	\$56-53

\* A paper read at the recent meeting of the Institution of Mining and Metallurgy.  
† Figures for 1894 not made up exactly in same way as previous years.  
New management. Accounts incomplete.

TABLES SHOWING COMPARATIVE RESULTS OF THE WORKING OF NOS. 1, 2, AND 3 FURNACES.

TABLE VIII.—No. 1 FURNACE.

First Working of No. 1 Furnace—1st charge February 3, 1892.

General "clean-up," ending—	Ore furnished, Lb.	Total Mercury.		Per cent. Assay of ore.	Per cent. = yield gained.	Mercury, per cent. on ore.	Loss.
		In ore, Lb.	Produced, Lb.				
5th May, 1892 .....	1,095,600	21,971-31	15,866-01	2-01	72-10	1-45	0-28
1892.							
June .....	760,500	12,383-40	8,898-50	1-81	72-44	1-17	0-24
2nd week, September ..	1,045,200	17,785-20	11,711-00	1-70	65-63	1-12	0-14
December. No ore available .....	—	—	—	—	—	—	—
1893.							
February .....	1,805,700	30,068-60	20,609-50	1-85	68-54	1-14	0-31
3rd week, May .....	747,800	38,832-60	29,717-50	5-19	76-53	3-97	1-12
1st week, August .....	631,200	32,084-0	23,717-00	5-08	73-92	3-76	1-12
1st week, October .....	1,378,800	70,918-60	53,434-50	5-14	77-01	3-90	1-21
1st week, November ..	808,190	26,604-05	22,648-75	5-25	85-13	2-77	0-28
1st week, December ..	619,200	20,921-90	19,311-25	3-37	92-31	3-11	0-28
1st week, November ..	387,200	14,141-60	12,529-50	3-85	88-60	3-23	0-42
December .....	523,200	17,178-80	15,343-00	3-28	89-32	2-93	0-35
1894.							
Furnace worked irregularly; details incomplete .....	2,337,790	75,844-6	69,832-50	3-77	88-56	2-93	0-29

TABLE IX.—No. 2 FURNACE.

General "clean-up," ending—	Ore furnished, Lb.	Total Mercury.		Per cent. Assay of ore.	Per cent. = yield gained.	Mercury, per cent. on ore.	Loss.
		In ore, Lb.	Produced, Lb.				
1892.							
June .....	883,500	12,198-75	7,845-03	1-73	62-67	1-12	0-28
2nd week, September ..	1,235,400	22,422-50	14,736-25	1-81	65-70	1-19	0-42
December .....	697,200	16,599-80	13,964-25	2-28	84-12	2-00	0-20
1893.							
February .....	2,816,100	51,228-85	36,345-50	1-35	70-25	1-39	0-51
3rd week, May .....	754,200	39,454-15	31,658-75	5-23	80-24	4-22	1-03
1st week, August .....	709,800	36,113-00	28,129-00	5-09	77-83	3-96	1-10
1st week, October .....	1,483,400	75,587-15	59,786-25	5-18	79-05	4-08	1-08
1st week, November ..	849,297	28,457-70	25,383-25	3-35	89-19	2-93	0-28
1st week, December ..	622,800	19,968-00	18,627-75	3-20	89-83	2-99	0-31
1st week, November ..	380,400	14,289-60	12,330-85	3-74	86-45	3-53	0-40
December .....	523,000	17,894-40	16,844-07	3-42	84-13	3-22	0-21
1894.							
Furnace worked irregularly; details incomplete .....	2,374,497	80,572-78	73,185-32	3-39	80-85	3-08	0-21

TABLE X.—No. 3 FURNACE.

General "clean-up," ending—	Ore furnished, Lb.	Total Mercury.		Per cent. Assay of ore.	Per cent. = yield gained.	Mercury, per cent. on ore.	Loss.
		In ore, Lb.	Produced, Lb.				
1894.							
March to April .....	1,035,600	20,731-15	17,645-00	2-03	85-13	1-70	0-28
May to June .....	1,176,600	24,308-43	19,321-50	2-07	79-48	1-84	0-24
July to August .....	1,331,200	30,793-40	26,391-28	2-50	83-69	2-14	0-26
1895.							
March to April .....	3,443,400	75,838-07	63,360-75	2-20	83-65	1-83	0-29

## TIN TICKETING.

THE fortnightly ticketing for tin ores was held at Tabb's Hotel, Redruth, on Tuesday. Result:—

VALUES OF ORES SOLD FROM EACH MINE.		Tons cwt.		Per ton.		Value.	
Mines		£	s. d.	£	s. d.	£	s. d.
Dolcoath No. 1 .....	14 0	37	10 0	525	0 0		
do No. 1a .....	14 0	37	10 0	525	0 0		
do No. 1b .....	12 0	37	12 6	451	10 0		
Wheal Grenville A .....	18 0	39	2 6	704	5 0		
do B .....	14 0	38	17 6	544	5 0		
do No. 2 .....	4 0	22	15 0	91	0 0		
West Kitty No. 1 .....	10 0	38	5 0	382	10 0		
do No. 1a .....	10 0	38	10 0	385	0 0		
do No. 1b .....	10 0	38	10 0	385	0 0		
East Pool A .....	14 0	29	15 0	416	10 0		
do B .....	14 0	29	17 6	418	5 0		
do No. 2 .....	2 0	14	0 0	28	0 0		
Carn Brea No. 1 .....	10 0	32	0 0	320	0 0		
do No. 1a .....	10 0	32	5 0	322	10 0		
do No. 2 .....	1 0	22	5 0	22	5 0		
Tincroft .....	10 0	34	5 0	342	10 0		
do .....	10 0	34	10 0	345	0 0		
Basnet (Limited) No. 1 ..	9 0	39	12 6	356	12 6		
do No. 1a .....	9 0	39	12 6	356	12 6		
Killifreth .....	12 0	37	5 0	447	0 0		
Phoenix United No. 1 .....	9 0	38	10 0	346	10 0		
do No. 2 .....	2 10	34	18 6	86	17 6		
South Condarrow .....	5 0	39	0 0	195	5 0		

223 10 £7988 7 6  
AVERAGE PRICE PER TON, £35 15s. 8d.

**IRON AND STEEL INSTITUTE.**—The autumn meeting of the Iron and Steel Institute will be held at Bilbao at the beginning of September. The programme will include visits to the leading iron and steel works, and to the important mines from which so large a proportion of the iron ore used in Great Britain is obtained. Assurances of a hospitable reception have been received from the President of the Provincial Deputation, Don José María de Arce, and from the Alcalde of Bilbao, Don Emiliano de Olano, as well as from the leading iron masters, mine owners, and engineers of the district. In view of the limited hotel accommodation at Bilbao, arrangements are being made to secure one of the Orient Company's steamers to convey the members to Bilbao and back, and to serve as a floating hotel. The cruise will last a fortnight, and calls will be made at some of the Spanish and French watering places. The passage money will be about 20 guineas, including board on the steamer while in port. The annual general meeting of the Institute will be held, by kind permission, at the Institution of Civil Engineers, on May 7 and 8 next.



## GILPIN GOLD, LIMITED, COLORADO.

(FROM OUR OWN CORRESPONDENT.)

PURSUANT to editorial suggestion that the writer should occasionally pay special attention to Colorado mining properties in which English capital is invested, on February 1 he visited the mine and the amalgamating and concentrating stamp mill in Gilpin County of the above English company, organised in June last, with headquarters in London.

Central City is 40 miles from Denver, with an altitude of 8500 feet, or about 3400 feet higher than Denver. A train leaves Denver daily at 8.15 a.m., arriving at Central City about 11 o'clock, returning at 3.10 p.m., arriving in Denver at 6 o'clock.

The mining property of the company consists of five claims—viz., Cashier, South Brooklyn, Republic, Electric, and Washington Lot, all patented and paid for, aggregating about 26 acres, situated on Mammoth Hill, about ½ mile from the railroad station at Central City, but at several hundred feet greater altitude. Under former ownerships, and with the loose and crude methods then in vogue, over £20,000 was taken out of a portion of these claims only.

The property has an advantage in its unusual width, resulting from the acquisition, since the original purchase, by the company of a parallel property. The vicinity is so characterised by parallel rich and continuous veins at short intervals that in the early 60's the miners decided that a claim 50 feet wide was as much as one man ought to have, and some of the older and most famous local mines are on claims only 50 feet wide. On the unusual width of the property in question several parallel veins have already been found.

Standing on the crest of Mammoth Hill on the property of the company, one gets some idea, from the number of celebrated mines in sight, of the wonderful mineral wealth, past and future of this comparatively small belt of territory, 4 miles long by 2½ miles wide, which has, since 1859, produced over £16,000,000 sterling worth of mineral, almost entirely gold, irrespective of the vast amount lost by imperfect methods of treatment. The output for 1895 was about £600,000; it is estimated that for 1896 it will be £800,000, and everything indicates that the district will be a big producer for many years yet to come.

Within a distance of not to exceed three miles from the property of the Gilpin Gold (Limited), there are 10 mines which have passed the £200,000 mark in their production. There are from five to ten shafts reaching a depth of from 1200 to 2200 feet, one of the mines having about 30 miles of underground workings; there are, perhaps, 20 mines ranging from 700 to 1200 feet in depth, and a great number of shafts of lesser depth.

Some of them may be mentioned—1600 feet in a direct line due east from the Gilpin Gold (Limited) is the Fiske Group, which has produced £600,000, and the adjoining Gregory-Bottall Group, which has produced £2,600,000; north-north-west from the Gilpin Gold (Limited), and about 4500 feet distant, is the Gunnell, which has produced £1,300,000; due west on Quartz Hill, 5000 feet from the Gilpin Gold (Limited), and in line with it and the Fiske is the celebrated California and Hidden Treasure Group, which has a record of £1,200,000, while on the same hill some portions of the Kansas Group, which produced £400,000, and of the Burroughs Group, which has produced £800,000, are even nearer to the Gilpin Gold (Limited), in a direct line, than the California Group. Less than 4000 feet to the south-west is the Saratoga Group, which has produced over £200,000. In the space between the Gilpin Gold and the above-mentioned mines are a number of less famous ore shippers.

On the property of the Gilpin Gold (Limited) the west shaft is 370 feet deep, having four levels, each of which has been driven both east and west from the shaft. The veins of ore vary from 6 inches to 3 feet in width, carrying from ½ ounce to 3½ ounces of gold to the ton. Assays have been obtained as high as £40 per ton. Practically, all the workings show large masses of milling ore which can be cheaply mined, and such ore is being accumulated on the dump ready for the completion of the mill.

The equipment of the mine is very efficient, comprising all modern improvements and labour-saving arrangements. The machinery consists of two 60 horse power steel boilers, a duplex boiler feed pump, a feed water heater, a 50 horse power hoisting engine with steel wire rope 650 feet long, an Ingersoll-Sergeant air compressor used for air drills and ventilation. The shaft has two compartments—one for hoisting ore by bucket and the other for the ladder-way for the men.

The force consists of 29 men, including superintendent, engineers, blacksmith, carpenter, &c., and with few exceptions they are Cornishmen.

Within 5000 feet the Gilpin County tramway, a narrow gauge steam tramway for ore only, over 12 miles long, passes the property and a spur connecting therewith, on an easy grade, can, therefore, be constructed at moderate expense. The completion of such connection will admit of the ore being dumped from the bucket at the shaft house, and conveyed by ore wagon on the tramway to the 25 stamp mill which the company has erected on North Clear Creek, about 1½ mile from the mine in an air line, but considerably over 1000 feet lower. The writer visited the mill also.

The saving of the values in the ores not rich enough for smelting has been and is yet a great problem in Gilpin County. There are about 500 stamps in operation in local mills, more or less old, and as the supply of water is limited lower down the stream a mill is located, and the more the water is impregnated with material from mills higher up. The Gilpin Gold (Limited) purchased a mill site high up on North Clear Creek with only one other mill, and that of only 50 stamps, above it, so that the water has the requisite clearness for effective amalgamation and concentration. The mill, moreover, is connected with the lower terminus of the ore tramway, admitting of the ore being conveyed at low charge over the tramway, run into the second storey of the mill, and dumped on the Grizzly receiver. The mill will be in operation before March 1 equipped with every labour-saving and "up-to-date" appliance which local experience has proved the best, the object being that it shall be a decided improvement on anything now in operation. For instance, under the old system 1 ton or less of ore per day per stamp is treated. The new mill, by means of the "rapid drop," will treat from 2 to 3 tons per day per stamp. Again, while the existing local stamp mills do not save to exceed 65 per cent. of the gold, 35 per cent. at least going down the creek in solution, the mill is designed to save at least 90 per cent. Moreover, everything is planned to save labour, utilise natural gravity and water power, and achieve economical production. The ore reserves in the mine are being increased so rapidly that it is expected it will be found necessary to double the capacity of the mill in the early future.

The properties of this company are given as a practical illustration of the changed and improved conditions of mining in Colorado—to wit, a more full and accurate knowledge of geological formations; improved drilling and general mining apparatus; increased skill of the miner; reduced hauling charges;

improved stamp and concentrating mills, with reduced operating expenses per ton; reduced railroad freight and smelting charges; and, throughout all, thorough business judgment and close attention to detail in the management. Both mine and mill will have telephone connection with the Denver office and each other.

As seen in the property in question, all of the above tends to the more economic production of gold, and to reduce the business of mining to a mathematical proposition, which means the safe and profitable investment of money.

THOMAS TONGE.

## VICTORIAN GOLD MINING.

By THOMAS CORNISH, M.A.I.M.E., Author of "Our Gold Supply," &amp;c.

## Misleading statements in prospectuses.

IT is not long since you had an article treating on the above. The case of the Ballarat (Steiglitz district) Gold Mines (Limited) v. Robotham, which was before the Courts lately, shows up the absurdity, as well as the meanness, of sailing under wrong colours, and bringing companies out under names which they are not justly entitled to. Ballarat is a famous gold field, and, therefore, a name to conjure by. The gullible public, who are so apt to be deceived by names as also by appearances, are liable to be greatly taken in by misleading titles and statements in prospectuses, put forward by amateur mining authorities and persons who have little or no knowledge of Ballarat or its surrounding districts, and neighbouring gold fields.

The Colony of Victoria is divided into seven mining districts—viz., Ballarat, Beechworth, Bendigo (or Sandhurst), Maryborough, Castlemaine, Ararat, and Gippsland. These districts, which cover large areas of territory, are again in divisions or sub-divisions, thus the Ballarat mining district has its Central division (Ballarat), Buningyong division, Smythesdale division, Creswick division, Clunes division, Gordon division, Steiglitz division, and the Blackwood and Blue Mountain South division. Each of these divisions are what is termed gold fields, with central towns from which the division is named. Now, Steiglitz is a gold field some 30 miles from Ballarat, and in itself is a gold field for prospective development. It is a field like many others that was opened with marked success in the early fifties. The alluvial in the narrow gullies was rich in gold, but soon worked, and the quartz lodes from the surface down to water level, which were operated on, gave some exceptionally good results, the ore often averaging from 2 to 10 ounces to the ton. The field is situated in a hilly district, and the cost of cartage and crushing in the early days was very high, so that only high grade ore would pay for working at that time. Want of efficient machinery and difficulty of access, in the early history of Steiglitz, militated against its more systematic development at that time. For a number of years the field was neglected in favour of new rushes to other districts, but a few firm believers in its future have remained to steadily develop its resources, and a few years since Steiglitz experienced a revival in its mining history. The energy and enterprise of a few leading mining investors in the United Albions, New Mariners, and other companies on the field have proved the lodes at different points to greater depths to be not only persistent but highly payable. The successful efforts of the above two companies at the northern and southern ends of the fields, with the known past history of the central position, has drawn attention to the merits of this gold field for profitable prospective development, which under efficient management and moderate capital is likely to pay well.

I have, on more than one occasion, had to take exception to misleading names of mines and statements in prospectuses in reference to proposed mining companies in the Ballarat district. Some few years ago I had to call attention to some cases of glaring mis-statements in prospectuses which were issued about mines in the district that were calculated to and did mislead investors. One of these prospectuses came out under the ambitious title of the British Ballarat Gold Exploration Company (Limited). It contained misleading statements, and the position of the mine was incorrectly defined. I had been asked to report on the property by the vendor, but declined, as I could not recommend it, and the capital subscribed had to be returned. The Edinburgh Ballarat Gold Quartz Mine (Limited) was another company which came to grief through issuing misleading statements in 1890.

The mine itself, which was situated about 20 miles south-west of Ballarat, in the Smythesdale division, might have proved a good mine if properly worked, but the vendors copied statements made by me to the editor of *The Mining Journal* in an interview after my return from Victoria in that year, in which I had given a description of various mines in Ballarat that did not in a way apply to mines 20 miles distant on another gold field. As I said at the time, "I object to having my views on the prospects of Ballarat twisted and contorted to answer the purpose of promoters of companies to buy and work mines 20 miles from there."

As one of the pioneers, I know the Ballarat gold fields thoroughly, as also many other gold fields in Victoria, New South Wales, and other parts of the world. I have in my works and writings endeavoured to give practical and correct information to the best of my ability as to their position and prospects for profitable gold mining. I regret to see that the name of "Ballarat" should be used as a decoy word to help palm off on the public in an underhand way mines that in themselves may be all right if honestly brought out and worked on their merits. In the hurry and rush for gold mines there are many amateur authorities who profess to know all about gold mining, and who, having probably paid a flying visit to a gold field, assume to be authorities on the subject; while many others who have never seen a gold mine also profess to be experts and have the assurance to assume control of an industry that requires long experience and intelligent application to acquire a practical knowledge of or to know how to conduct its operations.

There are now several valuable gold mining properties in Victoria and other colonies that are practically standing idle through the apathy of shareholders and incapacity of directors who have been experimenting at the expense of other people. They start their operations with a blunder, or under some cover of deceit, and they keep on blundering, deceiving themselves and their shareholders until they bring the companies they have mismanaged into liquidation.

Gold mining is a business that requires practical common sense and common honesty for its guidance. Men may and do deceive each other in their dealings with mines by mis-statements and over-estimates of value, but they cannot deceive Nature. If the matrix to be operated on contains only a certain quantity of gold per ton, the profits of the mine will depend on the quantity of ore that can be raised, and how it is treated afterwards. Fine phrases from chairmen of meetings and ambitious hopes of excited shareholders or enthusiastic vendors will not alter the value of the ore or the output of the mine; that must depend on the size and quality of lodes or depth and quality of

alluvial deposits, and the means employed for working the mines.

The various divisions in the Ballarat mining district, which contain about 2750 square miles (more or less of an auriferous character), have each characteristics of their own that are well understood by those who have had experience of the workings of the different fields, and there is no necessity of representing the prospects or positions of mines as being different from what they really are.

As I stated in your Journal last June, "I visited the Steiglitz gold field the previous year after many years' absence, and found the field well occupied for 5 or 6 miles in length, and about a mile wide, on belts of lodes that are proving highly profitable at different points—notably, the United Albions, the Waterloo, and the New Mariners. I visited the underground workings of the United Albions and New Mariners, three miles apart, and was pleased with the permanency and value of the lodes, and am satisfied that Steiglitz is a great gold field, and worthy of special attention."

It is to be hoped that any Victorian mining companies that may be brought out on the English market will be content to rest upon the merits of the district, or the gold field on which they may be situated, without wanting to shield themselves under borrowed plumes.

Having taken so much interest in advocating Victorian gold mining, it is not satisfactory to see or hear of misrepresentations by and through the agency of persons who cannot be considered authorities on the value or position of gold mines in Victoria.

## MEETINGS OF MINING COMPANIES.

## SOUTH AFRICAN GOLD TRUST, LIMITED.

THE annual general meeting of shareholders in the South African Gold Trust (Limited) was held on Monday, at the Cannon-street Hotel, under the presidency of Mr. H. E. M. DAVIES (the Chairman of the company).

The SECRETARY (Mr. Walter F. Andrewes) read the notice summoning the meeting.

The CHAIRMAN said: Ladies and Gentlemen—I think I recollect saying on a previous occasion that the company was in the hum-drum of prosperity and sound finance. That remark holds good to-day, although our prosperity might, under certain conditions, be greater than it is. There is, therefore, little for me to trouble you with to-day. In regard to the report there is nothing to say. In regard to the balance-sheet, it seems a model of correct finance. Our liabilities, outside the debenture debt, are almost nominal, and our contingent liabilities are quite nominal, amounting to only £2600. Our investments are of the soundest of their class, and stand in the balance-sheet at or below cost price, which is in all cases below the present market price. Our reserve fund is in Consols; our sundry debtors are for advances against stock at interest; and our cash balance speaks to the prosperity to which I have referred. Coming now to the revenue and expenditure account—if you will compare the schedule of investments submitted last year with that now before you, you will observe that although we have considerable profits derived from realisation of stocks during the year, our investments as they stand now show an improvement on those of last year, so that our revenue has not been earned at the expense of capital investments. The expenses in London and South Africa are on the usual moderate scale, and as a result of the year's business there is a net profit of £522,795 15s. 3d. (Cheers.) After deducting from this the interim dividend of 5s. per share paid in June last, the interest on the preference shares, the preference issue expenses, and income tax, there remains a disposal balance of £459,378 16s. 7d., out of which we recommend you to-day to transfer to reserve fund the sum of £50,000, and a dividend of 15s. per share, free of income tax, which, with the interim dividend paid, is at the rate of 100 per cent. for the year, and leaves the sum of £221,878 16s. 7d. to be carried to the credit of the current year. In recommending you a dividend of 40 per cent. last year, I told you that before doing so we looked ahead to see if we could reasonably maintain such a dividend, and this year before recommending a larger dividend, we again looked ahead. (Applause.) Referring to our schedule of investments once more, and recalling the schedule laid before you last year, you will observe that during the year ending December 31 last, there has been a considerable increase in our holdings in the Witwatersrand district. I call your particular attention to this, because it has been suggested in the public Press, and by those who should know better that the great companies and firms working in the Transvaal having unloaded large blocks of shares, have brought about the recent disturbances there with the object of buying the shares back at lower prices. Besides being Chairman of this company, I am Deputy-Chairman of the Consolidated Gold Fields of South Africa, and in the course of business I come into close contact with the principal companies and firms doing business in the Transvaal, and I say that a more foul slander was never uttered. (Hear, hear.) An ounce of proof, however, is worth a pound of argument; and in regard to this company the schedule to which I call your attention speaks for itself. With the purely political side of the question I have no concern; with the political-commercial side I have, and without troubling you with minor things I will put three of the great grievances before you:—First, the excessive taxation of the Rand, over and above the requirements of the State, proved by the accumulation of gold in the Transvaal Treasury; secondly, the Netherland Railway monopoly; thirdly, the dynamite monopoly. These three grievances, speaking roundly, but with great moderation, cost the Rand industry £100,000 per month. Speaking roundly again, the tonnage of ore crushed on the Rand and district approaches 400,000 tons per month; consequently this excessive taxation and the monopolies are a charge of some 5s. on every ton of ore crushed. Now, Gentlemen, do you realise if these things were done away with what it means? It means enhanced dividends on the first-class companies to the extent of 40 or 50 per cent.; it means that many mines which now hardly pay their way, or work at a loss, would be sound dividend-paying concerns; it means the opening up of many low grade mines, which at present it is not worth while to develop; and it also means employment for thousands more people and a large additional trade with Europe. (Hear, hear.) I say, Gentlemen, if these grievances could be done away with, the boom prices of last autumn would be nothing compared to the prices at which Witwatersrand gold mining shares would stand on their merits. (Applause.) It was to get redress of these grievances by agitation such as we have often known in the history of England that many of our fellow countrymen and some of our American cousins are now awaiting their trial in Pretoria. (Hear, hear.) In regard to the labour question, I estimate that the number of natives required to fully man the mines is only about 10 per cent. of the native population of the Transvaal alone, without tapping the surrounding states; so all that is needed for a plentiful supply is proper regulations for the protection of natives by the Government and the efficient carrying out of such regulations. Now, as to our investments. The Consolidated Gold Fields has pinned its faith to deep levels, and we have pinned our faith to the Consolidated Gold Fields as being the cheapest method, for the time being, of acquiring large deep level interests. We hold 125,000 shares of the Consolidated Gold Fields, which stand in our books at an average cost of £5 18s. 3d., so I think you will say we bought carefully. The Consolidated Gold Fields is the greatest deep level corporation on the Witwatersrand, and, in conjunction with Messrs. Wernher, Beit and Company, have been the great pioneers of deep level mining in the district, and have, by their foresight and enterprise, while



doing well for their shareholders and for themselves, been of immense service for the Transvaal in the development of its principal industry, and by proving the payable character of the gold deposits in the deep levels, which might otherwise have lain dormant for years. (Hear, hear.) During the recent disturbances work has, as far as possible, been proceeded with, and only quite recently I had received what is, perhaps—taken in conjunction with the Rand Victoria borehole—the most important news which has come from the Rand since its first discovery. This news is the actual demonstration of the main reef series in depth at a distance from the outcrop not previously contemplated, and of the flattening of the reefs as they dip into the earth. (Hear, hear.) Although scientists were quite satisfied of the continuity of the main reef series, nothing but the sinking of an actual borehole to cut the reefs could place the question of their being reached far from the outcrop at payable depths beyond all doubt, and this the Consolidated Gold Fields and Messrs. Werner Beit and Company resolved to do, selecting a spot under the Meyer and Charlton Mine, approximately 6000 feet from the outcrop. From the inclination of the reef at surface it was estimated that the reef series would be struck at something under 4000 feet, but owing to the reef flattening in depth the main reef series was struck in the borehole between 3100 and 3200 feet from the surface. The examination of the core brought up shows the existence at this depth of the entire main reef series, consisting of the north reef, main reef, middle reef, and south reef, exactly as they are found outcropping; and to place beyond any shadow of doubt the question of this being the main reef series, the drill was continued until the shale beds were pierced, which are known to underlie the main reef series throughout the Witwatersrand. On this evidence I estimate that at 9000 feet from the outcrop the reefs will be found lying only some 4000 feet from the surface, and I would remind you that Mr. Hammond, the consulting engineer of the Consolidated Gold Fields, in his latest report on the subject, states that he is convinced of the feasibility of profitable mining to a vertical depth of at least 5000 feet. I will not dwell further on the subject, but you can, on reference to any map of the Witwatersrand district, see for yourselves what an immense area of gold-bearing ground has been proved by the successful result of this borehole. (Applause.) In regard to our other investments, our next largest holding is in the Simmer and Jack, where the deep level shafts have, in every case, cut the reef across the entire property. The other holdings I need not enumerate in detail, but they are principally in the best class of deep level mines. When I began I said we were prosperous, but might become more so under certain circumstances; I refer to the question of the Uitlanders' claims being met. Recent events have caused "the fierce light which beats about the throne," and the eyes of Europe to turn towards Pretoria, and I feel sure now public attention has been aroused that President Kruger, although he will probably take his time, is too able a statesman and too good a patriot not to recognise the necessity of putting his house in order, and of working in harmony with the more enterprising nationalities which go to make up his community, and I feel convinced that Mr. Chamberlain, who by his action has made himself the Uitlanders' champion, and who has shown how much he has their cause at heart, will not fail to come to a satisfactory understanding with the President. (Applause.) I shall be very pleased, after Mr. Farmer has seconded the motion for the adoption of the report, to answer any questions that may be put to the best of my ability. I now beg to move:—"That the report and accounts now presented be received and adopted, and that a dividend of 15s. per share, making, with the interim dividend already paid of 5s. per share, 100 per cent. per annum, be and is hereby declared."

Mr. W. M. FARMER seconded the motion, which was carried unanimously.

Messrs. Jackson, Pixley, Browning, Husey, and Co. were unanimously reappointed at a fee of £150.

Mr. GILBERT ELLIOT proposed a vote of thanks to the Chairman and directors "for their admirable management of this excellent company." (Applause.)

Mr. GODFREY seconded the motion, which was carried unanimously.

Mr. KEITH moved that the remuneration of the directors for the year ending December 31, 1895, be increased by the sum of 2000 guineas.

The Earl of VERULAM seconded the motion, which was carried unanimously.

The CHAIRMAN having briefly acknowledged the vote, the proceedings terminated.

## THE WEST AUSTRALIAN TRUST, LIMITED.

The second ordinary general meeting of the West Australian Trust (Limited), was held on Thursday, at Winchester House, Old Broad Street, E.C., under the presidency of Mr. A. DUNCAN (Chairman of the company.)

The SECRETARY (Mr. Beauchamp O. C. Orlebar) read the notice convening the meeting.

The CHAIRMAN said: Gentlemen—No doubt some of you are considerably puzzled at the notice of an ordinary general meeting of our company so quickly following the statutory meeting I had the honour to preside over at the end of November last, especially as the notice which has been read does not refer to any specific business. The explanation is that by our Articles of Association, a meeting is fixed to take place before the 28th of this month, and I may say at once, that but for this we should not have troubled you to meet us now, as a sufficient time has not elapsed since the company came into existence to enable us to achieve definite and realised results, and this is the reason why we considered it inexpedient to send out a report and accounts up to the end of the year. It will be remembered that at the statutory meeting we announced that the North White Feather Consolidated Gold Mines (Limited) had been formed to take over and work certain valuable mining claims which our company had acquired, but that numerous difficulties had arisen in consequence of the death of our managing director, Mr. F. A. Thompson, which took place within a month after our company was formed. I will not take up your time by describing in detail all the obstacles and difficulties which have arisen, but they have been somewhat formidable and have required unlimited patience, and I wish to mention here that the very reasonable, I might say generous, way in which the executrix of the late Mr. F. A. Thompson has met us, has greatly facilitated the favourable position in which we now find ourselves. Of course, as you know, there are other incidents which have greatly retarded our operations during the past four months. You will know that the mining market was not in the very best condition for the flotation of mining properties such as our business is concerned with. During the three months from October to December, and even the first months of this year, we had numerous offers of properties, but it would have been most unwise to have attempted to launch them. Adverting again to the North White Feather Company, I am pleased to tell you that that company, though young, is vigorous. It possesses a very valuable property, and we are confident that it will turn out a very successful undertaking. Its property adjoins the White Feather Reward Claim, and their reef has, from all reports, been proved to run right through the North White Feather property. I do not know whether you have any of the reports of the White Feather Reward, which were issued at the meeting of that company held about February 6. If you have, you will see there the extract with which I am going to deal. And you will also know that in the map accompanying that report our mines are coloured yellow and theirs are coloured red, showing the

exact position of our mines, which immediately adjoin the shafts that they sunk, and from our reports it appears that our property is not only of much larger extent, but contains even more valuable ore than the White Feather Reward. You will see by the first annual report of the White Feather Reward Claim that 489 tons, yielding 1037 ounces, were crushed up to the end of December. Since then we have been informed that their mill ran 414 hours and crushed 235 tons, yielding 486 ounces. The total is, therefore, 724 tons crushed, yielding 1523 ounces, giving an average of 2 ounces 2 dwts. 3 grains per ton. Should our property which, as I said, is immediately adjacent, turn out as well as that, we shall do well, and of course I may here remind you that our holding in shares alone represents one-third of the value of this mine. The North White Feather has not completed the purchase from this company, but the position is that the greater part of the North White Feather preference shares have been taken, or agreed to be taken, and this in itself practically assures the balance of the cash part of the purchase money, so that as soon as we have received this we shall be in a position to pay a very substantial dividend, and we hope it will be at no remote date. In addition to this, we expect eventually to make a large profit out of the shares of the North White Feather, which we took in part payment of the purchase money. I may add, we had prepared an account showing in detail the transactions between the two companies, and a rough profit and loss account. These are at our office, and are open to the inspection of any shareholder who wishes to see them. Your directors are greatly indebted to the untiring energy with which Mr. Harrison Davis has conducted the difficult and complicated negotiations in which we have been continuously engaged since October last, and he will now give you some information on the matters at present in hand, and on the future business we propose to do. I shall be glad, after you have heard Mr. Harrison Davis, our managing director, to answer any questions as far as I am able. (Applause.)

Mr. HARRISON DAVIS said: Gentlemen—The Chairman has gone so fully into the matters connected with the North White Feather that I do not think I need touch upon them to any great extent. I may, however, say that through the courtesy of the manager and secretary of the West Australian Gold Fields, I have received a great deal of private information respecting the property in which we hold so large an interest. I think it is a very good thing that the West Australian Trust did not take up a great deal of business. I do not know how we should have got out during the slump. I think, myself, that the temporary difficulties connected with floating new companies are gradually disappearing, and that in a very short time the public will be coming into the undoubtedly valuable mines of Western Australia. As to the future, I look upon the prospects of the West Australian Trust as extremely promising. I am glad to tell you that we have secured a property in West Australia consisting of 66 acres in the Coolgardie district, which, to my mind, is of undoubted value. It has been reported on by Mr. Haig, a gentleman whom I have known for many years, and who has been Inspector of Mines under the New Zealand Government for the last 20 years. His reputation is well known, and he came to London with the highest references, and went out to Western Australia on behalf of a syndicate, securing this property for them, and we in turn have secured this mine on very moderate terms. Of course we shall get the capital underwritten, and I see no difficulty about that. I may tell you that we have also cabled out instructions to have 50 tons of quartz crushed on the mine. I think it is a good thing to show the public what your mine consists of, and I think that by getting 50 tons crushed before we issue the prospectus, we shall give the public something definite to pin their faith to. I may tell you in connection with the Golden King, which is the mine we have purchased, that it was also reported on by Mr. Roberts, Dr. Simon's manager, and also by Mr. Brian Hooker, an expert of great ability, well known in the mining world, and manager of the North White Feather Mine. As your managing director, my policy would be to get one thing off at a time. For the last few months I have been placed in a good many difficulties. I had to place 32,000 shares of the North White Feather Company, and I am very glad to tell you that I have been able to do so at par, which places our enterprise in a very different position to what it formerly was. (Hear, hear.) Of course, you understand that our issue only consisted of £50,000, and at the present time our shares are only 12s. 6d. paid. I think that in the interests of the company—and I see no difficulty about it—we ought to make a further issue of shares, because we shall be able to do a very good business with more money. I propose that we shall make a further issue of, perhaps, 25,000 or 30,000 shares, and I hope that within a very few weeks you will see them at a substantial premium; in fact, I feel quite convinced that you will. (Applause.)

The CHAIRMAN invited questions.

Mr. LEWIS enquired whether the shareholders might understand that the whole of the 32,000 shares referred to had been placed.

Mr. HARRISON DAVIS: Yes; we have placed the whole 32,000. On the motion of Mr. CALVERT, seconded by Mr. SHERMAN, a cordial vote of thanks was given to the Chairman, the managing director (Mr. Harrison Davis), and the board, and the proceedings then terminated.

## MOUNT GREENOCK GOLD ESTATE, LIMITED.

The first ordinary general (statutory) meeting of this company was held on Wednesday, at the offices of the company, Finsbury House, Blomfield-street, E.C., Mr. H. J. ETHERINGTON (Chairman of the company) presiding.

The CHAIRMAN said: This meeting has been called, as you are aware, to comply with the Companies Acts, which require that every company should hold a meeting of its shareholders within four months of incorporation. Such meetings are, in the majority of cases, mere matter of form; but I think we have more to put before you to-day than, as a rule, is placed before shareholders at a statutory meeting. The company was registered on September 30 last, and in the ordinary course of events this meeting would have been held a few days earlier; but up to within a few weeks, owing to the red-tapism of the Victorian Government, it appeared to be somewhat uncertain as to whether we should succeed in securing the whole of the rights over the vast block of alluvial ground which this company is formed to acquire. I am now in a position to tell you that not only has the transfer of the whole of the 1362 acres been signed, and leases handed to our solicitor, but that the said leases, and the official acquirement of the property by the company, are now going through the departmental routine necessary for formally vesting the property in us. Owing to the number of interests in the property, which include 630 acres known as Adam's Freehold, the necessary formalities to be gone through taking a somewhat longer period than is ordinarily the case. You may, however, take it for granted—in point of fact, it is so—that the company is in beneficial possession of the whole of the property to-day, and the registration of the title in the name of the company at the

Mines Department, Melbourne, is a mere matter of form. This being so, I think I may fairly congratulate you upon having acquired a unique gold mining estate. I say unique for many reasons; primarily, that the Mount Greenock Gold Estates are now acquired by an English Limited Liability company in consequence of the report upon the property by one of the most able geologists of the Australasian Colonies—viz., Mr. Reginald A. Murray, Geologist to the Government of Victoria. Further, your property, and more especially the freehold known as Adams, is to all intents and purposes, I think I may state positively and absolutely, ear-marked by the Government of Victoria, as being proved in such a way as to place it not in the ordinary category of possibilities and risky mining speculations, but under the heading of first-class mining investments. (Applause.) To anyone unfamiliar with the district and with the Government books that have been issued from time to time, this would appear to be incredible, but I can assure you that I have chapter and verse for everything I am saying, and this I will presently demonstrate to you beyond all doubt. Before proceeding further with that point, however, I would refer briefly to the manner in which the company was formed. The capital was readily subscribed within a few hours by eminently responsible persons connected with Australian mining enterprises, and although no shares were offered to the public, the issue must not be considered as one of the prospectusless flotations which have now become so distasteful to certain classes of the community. Your directors approved and authorised the issue of the prospectus upon which the capital was subscribed, and it is not a document we have any reason whatever to be ashamed of. On the contrary, although the subscription of the capital is now done with, and the company has started on its business career, any member of the public wishing for information about the company will be supplied with a prospectus on application. From this document, it will be seen that the vendors had such entire confidence in their property that they have accepted practically the whole of the purchase-money in shares, only the infinitesimal sum of £1000 having been paid in cash, which amount, I need hardly tell you, will barely cover the necessary expenses in safeguarding the property up to the time of its registration in your name. This is the most absolute evidence of the faith of the vendors in the future of the mine. (Applause.) I may tell you here, in passing, as I shall have to refer to it later on in dealing with the reports upon the property, that the whole of the necessary working capital mentioned by the expert has been subscribed, the company starting its career with the whole of that capital available for its business purposes. Now, in regard to the value of your property, I would beg to draw your attention for the moment to the strength and absolute reliability of the information placed at the disposal of your directors prior to the execution of the contract for purchase by the company. To begin with, your 1362 acres were stated by the Government Secretary of Mines to include the strike of the richest part of the auriferous belt. With your permission I will quote from the Government report by Mr. Murray, made on behalf of the Mines Department, Victoria, in which he says, in advising his Government as to the future outlook of certain properties:—"I would, therefore, confidently express the opinion that the untested properties south-westward from the South Greenock Mine—known as the Greenock Railway, the Nichols Estate, and Adam's Freehold—are likely to be payably auriferous, especially the last, which is on the strike of the richest part of the auriferous belt. Rich shallow ground has been worked to its north-west corner, and also at various places close to its northern boundary, as far as where the silurian rock dips beneath the basalt." This statement was made in certain communications to the Agent-General here in London from the Mining Department by the direction of the Minister of Mines in furtherance of a new scheme, by which reliable data could be supplied through these Government officials to intending mining investors in Victorian mining properties. Such a scheme, I need hardly say, will be welcomed by every British investor—hear, hear—for although a great deal has been done to elevate the status of mining investments and give to them a sounder character in the eyes of the commercial community, this action on the part of the Victorian Government cannot fail to increase the interest already taken by the public in Victorian mining ventures, seeing that the Government of that colony is doing all it can to place such facts before investors from time to time as will enable them to participate with safety in what is now recognised as a great and reliable industry. You who have the interests of bona-fide gold mining at heart will, I am sure, be pleased to learn that it is the intention of the Government to provide special plans and reports of mining districts and localities, with all possible particulars as to past yields and dividends for those who desire to seek such information. This is practically the first time in the history of mining that the Government has in any way attempted to protect the interests of mining investors and those who acquire mining properties for flotation purposes. In a letter forwarded to the Agent-General in September last the Secretary of Mines said:—"I have the honour to state that the question of aiding and directing into legitimate channels the enterprise which is now being displayed with respect to Victorian mining has engaged the most serious consideration of this department. It is known that the co-operation of British capital is being invited, and while the advantages that will accrue therefrom are recognised, it is the desire of the Honourable the Minister of Mines that the British investor should have the best possible information that can be afforded." The Secretary (Government) then goes on to say:—"A preliminary list, with such plans and particulars as can be obtained concerning the mines specified, is now being forwarded, and supplementary lists will be sent with such other information as to their nature as will be of advantage to the intending investors." Appended is Mr. R. A. F. Murray's report upon several properties which he evidently considers worthy of mention, and he directs special attention to the great aggregate length of additional alluvial leads as yet unworked, and requiring capital for their development, which, from all attendant conditions, held out rich promise of success to those who undertook their exploration. Mr. Murray says:—"Comparatively few, even amongst the mining community, grasp the real magnitude of these resources, and it would be well to bring the subject prominently under the notice, not only of Victorian but of British capitalists, as making due allowance for all uncertainties of mining as regards the amount of gold likely to be won, the existence of these leads is a fact conclusively demonstrated by the boring operations carried out by this department, while the strong likelihood of their proving payable is warranted by the geological conditions, and, in many cases, by the actual returns of the pioneer mines now at work on them." I want you to particularly bear in mind the fact that this report was made by Mr. Murray so recently as September last, and, incredible as it may appear, there can be no doubt, in the face of such irrefutable evidence, that many millions are yet to be won by the enterprising and careful prospector. (Applause.) After describing various districts, Mr. Murray actually mentions your own property in the following terms:—"The next stretch of unworked ground is the upstream portion of the Mount Greenock lead between Mount Greenock and Evansford. This has also been proved by borings; but, owing to the collapse of the last shaft



sunk, remains untested, though it crosses the well-known belt of auriferous silurian rocks, and the depth is only 150 feet." Mr. Murray further says:—"The down-steam continuation of the lead from Mount Greenock has been much worked, and the Chalk's group of mines near Carisbrook are all now yielding well." You will now begin to see the authority I had for making the strong statements I did at the commencement of my address to you, but Mr. Murray's special report upon this property is even more conclusive as to its extraordinary value. He says:—"I am thoroughly well acquainted with the ground, having personally made the geological survey of a large surrounding tract of country, and being also cognisant of all the principal mining developments in the vicinity. The ground contains a long portion of the basaltic strip which occupies the up-stream extension of the Majorca and Mount Greenock lead system, along which a number of richly-payable alluvial mines have been worked. The bedrock of the property is silurian, and the portion occupied is exactly upon where the lead in its north-easterly trend crosses the extension of the richest zone or belt of silurian rocks in the district, all the gullies and alluvial deposits in the shallow ground immediately to the north having yielded immense quantities of gold." Mr. Murray then emphasises his opinion by this unqualified statement—viz., "I am absolutely confident in the opinion that the portion of the lode contained within the property will be found highly remunerative if worked in a proper manner." (Applause.) He further states:—"There are also advantages in connection with the future development of the ground which render it specially attractive, as, in addition to the known fact of the lead passing through its entire length, and its situation on the known auriferous belt, the actual position of the deep ground has been proved by the old South Greenock workings at one end and a series of borings at the other. These workings and bores show that the maximum depth from surface to bedrock does not exceed 150 feet; that there is a very little troublesome drift, which can be avoided altogether in sinking, if a suitable site be chosen for the main shaft; and, also, that the amount of water to be contended with is moderate, and within the powers of a 12-inch, or, at most, a 14-inch lift." In concluding his report, Mr. Murray says:—"I can with the utmost confidence recommend this property to the attention of investors as one of the highest promise," which remark, gentlemen, is more than borne out by the fact that he considered your property worthy of special mention in his condensed preliminary report to his chief, the Minister of Mines. Finally, as regards the value of alluvial mining, I would point out that neighbouring concerns have in the past won a fabulous weight of gold, paid enormous dividends, and are still doing so. For instance, Madame Berry, with an area of 640 acres, has won gold valued at considerably over £1,250,000. The shares are 17s. 9d. paid, the total paid-up capital being £15,975; yet Madame has paid over £46 per share in dividends. Her neighbour, the Berry Consols, upon a very small outlay—the exact amount of which I am unfortunately unable to give you—has, to my knowledge, distributed considerably over £8 per share in dividends. Taking last mail's advice, dated January 20, I find the shares saleable at 85s. 6d., whilst the prolific Madame disbursts her usual weekly dividend of 2s. per share. I could give you a whole string of returns per week, amounting to hundreds of ounces, from the various Chalks, Barrys, Normanbys, and other alluvial concerns, but will not further trespass upon your time, as, at all times, not only will the board or secretary be pleased to give all particulars received from the mines, but I am sure that the Agent-General for the Colony will officially endorse my scant remarks to you upon the property. In connection with colonial share markets, I may state that the colonial shareholders desire that their shares shall only be marketable in the colony of Victoria, and that a colonial register should be kept for this purpose. This may be taken as a still further indication of their belief that directly the property is in active operation the value of their holdings will increase in their local market in the same way as have those of the other properties I have mentioned to you. Accordingly, an extraordinary general meeting will be held immediately after this meeting to pass special resolutions as to a colonial register, and I may say at once that I think such resolutions are entirely in favour of the English shareholders. Having regard to the official and emphatic statements made as to the future of our property, I venture to predict that there is no mine held by English investors that has such unquestionable prospects of, if not a weekly, a fortnightly dividend in store for it at a very early date. In the matter of dealing with an alluvial property, I am of opinion that the English investor has not been educated by experience in this respect as he has been with quartz concerns. In this case we have the exact position of the lead proved to us by the Government borings. The matter of putting down a full-sized engine shaft to 150 ft., as you can well imagine, a mere domino; and from my experience in Australia, I can assure you—and I say it conscientiously—the only one difficulty that we have to deal with is that of combating the water. The deep alluvial leads of Victoria are more or less underground streams. In this case, Mr. Murray has advised the using of a 12 inch, or, at most, 14 inch lifts. Your directors, profiting by the errors of other alluvial concerns, have already instructed your representatives in Victoria to doubly safeguard the success of the company by increasing the power to a pair of 10 inch lifts. The shaft down and drives put in, you can with every reliance look for profitable returns from the first. In this class of mining, gentlemen, I would point out that a pennyweight or two to the bad or too upon any reasonable thickness of wash dirt is remunerative; but I take it, from the statement in the secretary's report as to our property being on the richest strike of the auriferous belt, that we shall look for as many ounces. I am pleased to be able to tell you that your directors have been able to make arrangements with the Bendigo Gold Fields (Limited), for the local board of that company to represent your interests in Victoria. This will, of course, mean considerable economy in the case of local management; but although economy is a very good thing, efficiency is a much better one, and when I tell you that this newly-appointed local board of the Bendigo Gold Fields (Limited), consists of the Honourable J. Sternberg, M.L.C., Bendigo; the Honourable D. C. Sterry, M.L.A., Bendigo; together with Mr. Louis A. Samuels, the eminent Bendigo engineer, of whom you have heard so much on his recent visit to this country, you will see that the only possible chance of failure pointed out by Mr. Murray—that of the property not being worked properly—is hardly likely to exist in your company's history. I think that I have now placed the affairs of your company clearly before you, and I am sure you will appreciate what has been done up to the present. Any questions you may wish to ask I will at once answer to the best of my ability, and I may say, on behalf of the board, that the more enquiries you make the better will they be pleased. (Applause.)

Several questions having been asked by SHAREHOLDERS, and promptly answered, Mr. JACKSON proposed a vote of thanks to the Chairman for presiding, and for his very inspiring address. He had no idea the property possessed such undeniable credentials, and upon this point he congratulated his brother shareholders. This having been seconded, and carried unanimously, the meeting dispersed.

## LONDON AND JOHANNESBURG SYNDICATE, LIMITED.

An extraordinary general meeting was held on Wednesday, at Winchester House, Mr. GILBERT BOWICK presiding.

The SECRETARY (Mr. E. A. Knowles) having read the notice convening the meeting,

The CHAIRMAN said: Gentlemen—You are already aware of the object of this meeting from the notice which has been sent to you, and I think you will all agree, after having heard the statement I am about to make, that our proposition is a wise one, well considered, and one that is bound eventually to prove exceedingly remunerative to the shareholders. As your directors, although feeling that the step we are now advising is one adding to our responsibilities, yet we are obliged to recognise that very profitable business, which is constantly being offered to us, might be dealt with very successfully if we were possessed of a larger working capital. It seemed better, therefore, as we are extending our field of operations to West Australia, to transfer the business to a new concern with a larger capital and whose title would indicate the extended sphere of operations. The syndicate, as you are aware, was originally formed for the purpose of carrying on a financial and agency business in the Transvaal alone, and I think you will all admit that having paid in cash interim dividends amounting to 280 per cent. in the first year, with a good balance in hand, we have acquitted ourselves remarkably well, quite sufficiently so, in fact, to justify us in asking you and your friends for additional capital wherewith to carry on a larger and, we hope, even more successful business. Although since the autumn of last year Transvaal matters have been somewhat under a cloud, we are quite satisfied that these political disturbances are only temporary matters, and they can in no way affect the auriferous wealth of this wonderful country. So far as our work is concerned we cannot altogether regret the difficulties which have arisen; for we consider it only affords us an opportunity for securing good properties on much more favourable terms than would be possible later on. It was not to be expected that a "boom" of such an extraordinary character as was witnessed last year could go on indefinitely. Of course, in many instances, prices did become unduly inflated; but, speaking as one well acquainted with the enormous riches and resources of the district, I have no hesitation in saying that quotations have now gone, in many instances to some extent, to the other extreme. A great deal of the responsibility for this fall is being laid on the shoulders of the Boers; but, in spite of all that may be said to the contrary, the mining laws of the Transvaal are much more favourable than those existing in many other countries. Development work has at no time been materially interfered with, and even the threatened revolution at the beginning of the year did not assume sufficiently serious dimensions to justify the shutting down of the mills. Of course, the reduced gold output of last month was to be expected under the disturbed conditions existing; but the pessimistic individuals who are constantly favouring us with their opinions must have been somewhat surprised that the results for January were so satisfactory. You have doubtless noticed the newspaper rumours that the mines are now threatened with a labour difficulty, which would seem likely to affect the mining industry even more seriously than the recent slump. I have every reason to believe that this difficulty is altogether over-estimated. The Government is certainly doing its best to avoid any complications arising on this point, and I am quite sure that in a very short time the whole of the mines will be fully provided with any number of boys they may require. (Applause.)

As regards the assets which will be taken over, we estimate their value at over 400 per cent. on the issued capital of the syndicate. They consist chiefly of shares in different public companies having a marketable value, and a two-third share in the Roodkoppes Mynpacht, which has been favourably reported upon by well-known mining engineers, 52 mining claims of the Transvaal, as well as options for the purchase of properties. The syndicate is also sinking a coal prospecting shaft on Farm Tweefontein. Should this latter work be crowned with success—and from latest reports there is every indication of successful results—this coal property will become a valuable asset. I may say that it is arranged that the management of the new company will remain in the hands of Mr. Daniel and myself as managing directors—(hear, hear)—and we hope that the results we have already attained will be some guarantee of what we expect to do for you in the future. These results are safeguarded, to a considerable extent, inasmuch as our remuneration will chiefly depend on the profits made by the new company, in which we shall be large shareholders. It is needless for me, with the results we have attained, to say more as to the very profitable character of our business. Any of you can see, on looking down the list of share quotations, both of this and similar companies, that investments of this class always command a high premium in the market, and we hope and believe that the shares of the new company will ultimately stand as high, if not higher, than the shares of the present syndicate. I think I have said all that is possible under the present circumstances, and I will now conclude by moving a resolution authorising the sale of the company's assets to the new company, which I may here say has already received the assent of shareholders holding more than 90 per cent. of the capital of the company, including the French shareholders. (Applause.)

Now, as regards the extension of our operations to West Australia. A mining engineer is now on his way to the colony on behalf of the new company, and we believe he will soon be in a position to send home as much business as can be conveniently handled. There can be little doubt that within a comparatively short period we shall have a boom in West Australia mines as intense as that which has been seen in connection with the Rand. The Colonial Government is showing that it intends to give every possible assistance to the development of the mining industry. Although West Australia is to a certain extent in its infancy as a gold producer, yet much more has been done than is generally known. In 1886 it only produced in value £1147; the amount rose in 1890 to £86,000, and has annually but steadily increased, until in 1895 the production amounted to £279,000. There are now some 40 or 50 well-known mining properties upon which machinery has been or is being erected, and as soon as returns from these mines are to hand they are sure to attract very considerable attention to the possibilities of the country. There is no doubt that West Australia will produce some tremendously rich gold-bearing stone, and its richness will more than compensate for the additional costs of carrying on mining operations. I think that with our present resident director in South Africa, who will continue to represent the new company, and a representative in Western Australia, added to the very valuable established connection which this company has secured, not only in London, but in Paris, Vienna, Berlin, and Brussels, the new company will start under very favourable auspices indeed. (Applause.)

Mr. DAVENPORT THOMAS seconded the motion, which was carried unanimously.

The proceedings then terminated with a hearty vote of thanks to the Chairman.

## THE EXPLORATION COMPANY, LIMITED.

The annual general meeting of the Exploration Company (Limited) took place at the Cannon-street Hotel, E.C., on Thursday, Sir HORACE B. T. FARQUHAR presiding.

The SECRETARY (Mr. E. C. Palbrook) read the notice convening the meeting.

The CHAIRMAN, in moving the adoption of the report of the directors, and the accounts and balance-sheet of the company, said: Ladies and Gentlemen—I think this is the sixth or seventh time on which I have had the honour of addressing you at your general meeting, and I think I may safely say I never had the pleasure of welcoming you on any of those occasions with more satisfaction than I have to-day, because I have certainly got a better report to put before you. You have all had the report in your hands for some time, and if you will take it as read, I will, if you will allow me, allude to those points of interest that I consider are worthy of mention. Perhaps the point I should like to refer to, first of all, is the readjustment of our capital which took place on June 6 last; all the calls have been paid, and we shall now have, as you will see by the report, a very much larger sum to deal with, all our capital having been paid up. The next point I would like to allude to is the amount of dividend we are about to pay. Well, I think you will all be satisfied with the amount. We are going to pay a dividend of 5s. per share, which will take £75,000, out of a net profit of £105,172 13s. 10d., leaving the sum of £30,172 13s. 10d., to be carried forward to the reserve fund. I believe you will all agree with me that this net realised profit is a very satisfactory one. (Hear, hear.) Then, Ladies and Gentlemen, I want to remind you that the £375,000 we have invested is at cost price, and if these investments were to be realised to day they would show a very considerable profit; so we start the year very favourably, as far as investments are concerned. Another point I desire to bring before you is the Transvaal and General Association. As you know, we have the right to call 40,000 shares in this association, and, if realised, those shares would give us a very handsome profit. Well, we did not do so because we considered that the investment in the Transvaal and General Association was a satisfactory one, and we practically had the management of the business. This is tantamount to an investment in our own property. Then there is the West Australian and General Association, of which we are also the managers. It has had a very successful year. And we also issued, a few months ago, the capital of the Sulphide Corporation, the statutory meeting of which took place on February 18. The Sulphide Corporation have acquired some very valuable mining properties in Australia, and we have the highest opinion of the discovery of the treatment by which the company will treat their ores. We hope that it may prove a very successful undertaking. We have also, as you know, issued the capital of the Central London Railway Company, whose general meeting was held yesterday. Well, we have been able since the issue of the capital to acquire a great deal of the land which will be required for stations for the Central London Railway. I believe you all know that we have always had a very favourable opinion of this undertaking, in which we are interested, and in which my excellent colleague, Mr. Hamilton Smith, has always taken a very deep interest. Therefore, I hope that before long I shall be able to report the progress which has been made in the construction of that railway, and I trust it may be successful. The next subject I should like to refer to is the Anaconda Mine, in which we have also taken a very considerable interest. You, perhaps, know that the Anaconda Mine is the largest producer of copper in the world, and I believe, also, the second largest producer of silver as well. You have no doubt read Mr. Hamilton Smith's report on this mine, and also the very favourable views expressed as to this undertaking. The prospects were very encouraging, and we hope to do a very satisfactory business in this direction. We, generally speaking, have extended our interests in a most satisfactory way, and are now in touch with the principal financial groups both in France and Germany. In fact, our general business has increased enormously since we had the pleasure of seeing you before, and the results of the year's working show how hopefully we are placed as to the future prospects. No doubt you have heard that we have been considering for some time the policy of amalgamating some of our companies; but we have not quite decided all the details. However, I think it is right to tell you that the matter is engaging our serious consideration, and very likely before long we may have something to say to you about it. I think I have gone through all the matters I intended to touch upon. If any gentleman has any question to ask me, I shall be very happy indeed to give him any information that I can on any point that he may desire, but I think I have been able to convey to you not anything that is unsatisfactory, but a great deal that is most satisfactory. (Applause.)

Mr. LUCAS: I second the motion, and in doing so, I do not think I need add anything to the exhaustive statement of the Chairman.

Mr. LEE SMITH: I do not think there is any doubt that the shareholders will be satisfied with the report, but considering you say the investments show a profit at the cost price, I think you might follow the example of the Consolidated Gold Fields of South Africa, and the South African Gold Trust, and give us a list of your investments, though I do not suggest that it should be given to the prejudice of the company. You have given certain details of those investments, but could you not add to them?

A SHAREHOLDER: It would be most unwise were we to give the information in the way the last speaker asks for it, and open your books to the public and to the world. I think we ought to leave such a matter in your hands, particularly after the able way in which you have conducted the business. You have done your best for us in the past, and we hope you may bring about an even better result in the future. (Cheers.)

A SHAREHOLDER: I am connected with both this and the Transvaal General Company, and have never missed one of its meetings. I would much prefer you to use your discretion as to what you publish. I am sure we have every confidence in you, Sir, and your colleague, who have done so much for us in the past.

A SHAREHOLDER: Are the profits on this Anaconda Mine in the future, or are any of them included in these accounts? As regards the Central London Railway, I would not like to say a word in reflection upon the directors or managers, because I know nothing about them, but I have the impression that all first shareholders in new railway enterprises generally come out at a loss. As we, as a company, hold largely in this railway, I would like to ask—Are our profits subject to the earnings of the line, or derived from some other source?

Mr. BOSANQUET: Are we right in assuming that the profit on the sale of Transvaal General Association shares comes entirely into the current year, and is not dealt with in the balance-sheet now laid before us? Would it not be possible as the company is now on a firm basis, to declare interim dividends?

The CHAIRMAN, in replying, said: Ladies and Gentlemen: As to the investment, I think I shall have the support of the whole room that it would be very unwise to publish them. (Cheers.) If, however, any gentleman particularly wishes for information about them, I have no doubt we can give it to him privately, but to give it in any other way would be undesirable. Some of the profit of the Anaconda comes into the present statement of accounts. As to the Central London Railway, I am in great hopes on this occasion, although you have said that generally first shareholders are losers by railway enterprise, you will be wrong on this occasion. I think we all have the pleasure of showing a profit to the original shareholders who have invested in the Central London Railway. We, as a board, and particularly my friend, Mr. Hamilton Smith, who has more experience in these matters than almost any man we could name, formed a very satisfactory opinion of this enterprise during the three years we had it before us before the capital was issued. The Exploration Company has the rights it acquired as founders of the company. The profit on the sale of Transvaal and general shares does not come into the last year's accounts—they will appear in your next balance-sheet. (Cheers.) As to half-yearly dividends, I think you must leave that to the



directors, who are very anxious whenever they can to distribute profits amongst you.

The report was unanimously adopted amidst cheers.

The CHAIRMAN proposed: "That the dividend of 5s. per share, recommended by the directors, be and the same is hereby declared, and authorised to be paid."

Mr. HARRY MOSENFELT seconded the motion, and it was carried unanimously.

The CHAIRMAN said the dividend warrants would be sent out immediately.

Mr. HAMILTON SMITH proposed the re-election of the Chairman, and Mr. Mosenthal as directors.

Mr. LUCAS seconded the motion, and it was carried unanimously.

Mr. McKINLAY proposed the re-election of the auditors, Messrs. Deloitte, Dever, Griffiths, and Co., at a remuneration of 100 guineas.

The motion was seconded, and carried unanimously.

Mr. DAVID BENJAMIN: I beg to propose a vote of thanks to the Chairman and directors of this company. I have lived in the Transvaal for the last 10 years, and have watched with great interest the Exploration Company and also the sub-company, the Transvaal and General Association. I know perfectly well how much the Chairman and this company have done, not only for their own companies, but for South Africa as well. They have introduced a large amount of capital, which has been very profitable to this company. I have also had large transactions with it, and the Deep Levels Development Company, which has been a source of great profit, and if any body of gentlemen deserve the vote of the shareholders it is these gentlemen.

Mr. GIELGAD, in seconding the motion, said: I have had occasional experience in coming into contact with the directors and managers, and have always met with the greatest courtesy and received the fullest information. If I may be allowed to join in this motion, the managers, assistant manager, the secretary, and staff generally, I should like to do so. (Cheers.)

The motion was carried unanimously.

The CHAIRMAN, in reply, said: Ladies and Gentlemen—I can assure you that the kind way in which you have unanimously passed this vote to my colleagues and me has gratified us extremely. I only hope that we may always have, I cannot say a more satisfactory, but as satisfactory a statement to place before you as we have done to-day. I can assure you we shall do our very utmost to bring that about, and to do better if possible. I am extremely obliged to you, and return you all my best hearty thanks.

The proceedings then terminated.

## TRANSSVAAL AND GENERAL ASSOCIATION, LIMITED.

The annual general meeting of the Transvaal and General Association (Limited) was subsequently held, Sir HORACE FARQUHAR again presiding.

The SECRETARY (Mr. E. C. Falbrook) having read the notice convening the meeting,

The CHAIRMAN said: Ladies and Gentlemen—I have again to address you on this occasion upon the result of the first year's working of one of our children, as I may call this association. I think I may safely say that considering this is the second year—well, we were hardly quite in working order in the previous year—this our first business year has been a very satisfactory one. Our profit, as you will see by the accounts, is £116,045 3s. 10s., and we have pleasure in recommending to you the payment of a dividend of £105,000, being 10s. per share, or 50 per cent. on the capital. (Applause.) This will leave us the sum of £11,045 3s. 10d. to carry forward. We have dealt with the business of the association very cautiously and carefully; we have not undertaken many risks in the management of the affairs of the company. Had we done so we might possibly have made more money, but I think the shareholders will be satisfied with the result, especially when I tell you the large sum we have invested—£224,432. These have been taken at the actual cost, and like those in the Exploration Company have realised handsome profits. This time next year I hope to give you good results of many of these investments, and also of the satisfactory business we hope to do this year. I don't think I have anything more to say, because I practically dealt a good deal with the business of the company in addressing you with regard to the father company—the Exploration Company. So unless any gentleman has any question to ask me, I will propose that the report of the managers and the statement of accounts be adopted. (Applause.)

Mr. LUCAS seconded the proposition, which was carried unanimously.

The CHAIRMAN: I have now a very pleasant duty to perform—viz., to ask you to declare a dividend of 10s. per share, as recommended by the managers. I beg to move that the same be and is hereby declared and authorised to be paid. (Cheers.)

Mr. HARRY MOSENFELT: I have very much pleasure in seconding that, and in pointing out also that besides the £11,000 that we carry forward of undivided profit, we have some £36,000 additional profit from premium on shares, which profit has not been included in the revenue account. (Cheers.)

The CHAIRMAN: Perhaps I ought to have mentioned the fact; but it is stated in the report that the shares issued in 1895 include 25,000 taken at a premium of £36,874 19s., which amount figures in the balance-sheet. I did not mention that, but, as my friend, Mr. H. Mosenthal, remarks, it is so, and very satisfactory it is.

The motion for the declaration of the dividend was then carried unanimously.

Mr. PRATT: I have pleasure in moving the following resolution: "That Messrs. Deloitte, Dever, Griffiths, and Co., be and they are hereby appointed auditors of the company for the ensuing year, and that their remuneration be, as before, 70 guineas."

Mr. THORNE: I beg to second the motion.

The resolution was carried.

Dr. HADEN-HADEN: I have great pleasure in proposing a vote of thanks to the Chairman for the very able and lucid manner in which he has put the affairs of this company before us. We are also indebted extremely to the managing directors of this company, because, without the managing directors, I take it that we could not have made so large a profit as we have done. (Cheers.) I also think that we ought to consider the officers of this company. Whenever I have called at the offices I have got the fullest possible information; and, as regards the secretary, I must say that he always acts in a most courteous manner to everyone who calls upon him. (Cheers.) I have very great pleasure in proposing a vote of thanks to the Chairman; coupling with it the managing directors, the secretary, and officers. (Cheers.)

A SHAREHOLDER: I have great pleasure in seconding that. We are all very pleased with the dividend that is about to be distributed, and we are full of gratitude with a lively sense of favours to come.

The motion was carried by acclamation.

The CHAIRMAN: Ladies and Gentlemen—On behalf of my colleagues and myself, I return you our most cordial thanks. I wish to make one remark with reference to what has fallen from the gentleman who proposed this vote of thanks. It is impossible for me to impress upon you too strongly how very much you have to return your thanks for the able way in which the managing directors have looked after your interests. (Cheers.) It would be impossible for the directors of these companies to attend to the details, or to arrive at the results which I have had the pleasure of putting before you, if it had not been for the daily and constant attendance, and great ability and knowledge of all the subjects that we are most connected with in business, of our two managing directors—Mr. Hamilton Smith and Mr. Maguire. (Cheers.) I am very glad to have had the opportunity of stating this, because it is really practically to them that you owe the very satisfactory results which have been achieved. (Cheers.)

Mr. HAMILTON SMITH, who was greeted with cheers, said: I am very much obliged to Sir Horace Farquhar for the kind things he has said about myself and Mr. Maguire, and also to you, for your kind approval of the way in which we have conducted the business of the Transvaal and General Association during the past

year. If we had taken more risks than we have done, the profits would have been very much larger. I have no doubt that instead of showing profits enabling us to pay you a dividend of 10s. per share, we might have paid £1 per share, had we chosen to take more risk; but I very much prefer to make money without much risk, for I think that is more satisfactory in the long run. (Cheers.) I beg to thank you, ladies and gentlemen.

The meeting then separated.

## GENERAL BANKING AND MINING CORPORATION, LIMITED.

The first general (or statutory) meeting of the members of the General Banking and Mining Corporation (Limited), was held on Thursday, at Winchester House, Old Broad-street, E.C., Colonel BURTON BROWN presiding.

The SECRETARY (Mr. George Brown) read the notice convening the meeting.

The CHAIRMAN said: Gentlemen—In accordance with the law on the matter, we are compelled to call a statutory meeting, as you are well aware, within four months of the incorporation of the company, and, as we wish to proceed to business as rapidly as possible, this meeting has been called at an early date. I regret very much that our noble Chairman (Lord Clanmorris) is detained in Ireland on some very important business, and has just sent a notice requesting me to take the chair in his absence. I am not by any manner of means so worthy to fulfil the duties, nor so capable, as his lordship, but as the meeting is purely formal I do not think any great difficulties will arise. You are, no doubt, aware that this company was formed, with a capital of £500,000, for the purpose of carrying out a banking and financing business, and taking up certain options and mining work, all of which have been very profitably carried out by many companies in London. At the present time, according to our Articles of Association, you will find a number of gentlemen have taken up shares to the amount of over £50,000—namely, £50,200, those gentlemen numbering some 30 or so. Beyond that there are other shares taken up, and we have some valuable options placed before us by Count de Leviva, also a large Californian mine and a mine in Toulouse, from which we expect to make 20 per cent. on the shares which are waiting to be handed over to the company. We have before us, also, an offer of a very large champagne business, which, from the investigations we have been able to make, ought to bring us an extremely handsome profit. There are a number of other properties which I do not know whether it is at all necessary in this instance to go into. The shareholders are well aware of them. There are mining properties in the United States of America, both copper and gold, various bonds, and other things, from which we have very reasonable grounds for hoping that an exceedingly remunerative business may be done. Above and beyond all that, I have been requested, as a mining expert, to go out to Western Australia in order to obtain for the company certain mining options in Hannan's and Coolgardie districts. Everybody knows perfectly well what mining is being done there at the present day, and the great progress that is being made by good companies, and, as I shall have associated with me a certain number of practical mining engineers, we have every reason to believe that the company may profit considerably by the work I hope to do for them. Of course, at such a very early stage of the proceedings it is impossible to give you any further information than that I am now alluding to. I have no doubt that at our general meeting—if all goes well, and things in any degree come up to our expectations—the shareholders will congratulate themselves on being members of the General Banking and Mining Corporation. I am informed on reliable evidence that, with the options now before us, and the market value of them in one mine alone in France, the options on a very large number of shares which have been placed in our hands will alone be able to pay nearly, if not quite, 20 per cent. dividend. I, myself, am not an optimist in any of these things; I am only a working, intelligent man as far as that goes; and even if we succeed in doing that on one of our options I think we should have every reason to be satisfied. But I am told that I take anything but an exalted view of the situation. Nevertheless, I think that your directors, and all those connected with the company, will rather be judged by the results than by any promises that we may make. In order to let you know that no time has been lost, I have used every possible expedition so far as I am personally concerned in the matter, and I leave for Western Australia, for that part of the world that I am concerned in, by the P. and O. steamer to-morrow. I think if my co-directors, and those interested in the company, take an equal interest with me you ought to have every reason to be satisfied with our prospects. I do not think I need detain you any longer in the matter. If any shareholder has any question to ask me shall be very glad to give such information as we possess. My feeling, and that of all your directors, is that the more they take the shareholders into their confidence the better for everybody. That is what we intend to do. Of course, there are certain confidential questions connected with the management of the business which we do not want other people to know and take advantage of, but we shall be happy to afford what information we can. This closes the statutory meeting as required by law.

An extraordinary general meeting was then held. The CHAIRMAN moved the following resolution: "That the 500,000 shares of the company, of a nominal value of £1 each, be consolidated into 100,000 shares of a nominal value of £5 each." In doing so, he said: The extraordinary general meeting is called in consequence of a curiosity of the French law. In this particular instance we want to avail ourselves of certain points in connection with French law, and the consequence is that it is now proposed that the 500,000 shares of the company, of a nominal value of £1 each, be consolidated into 100,000 shares of £5 each. Of course, I need hardly say that this does not in any degree affect the capital of the company, but it simply makes our shares, instead of being £1 shares, £5 shares. The reason is this—and I think you will admit it is a very good one—that a very large number of shareholders, especially our friends across the water, are glad to have share warrants payable to bearer in preference to scrip, because they find them more marketable. We have recently learnt that according to French law a stamp duty of 2s. is required to be paid on every £1 share. That would be a heavy cost to a company if a large number of shares are issued, and it is evident that the Government would reap a very large and undue tax from our company by this arrangement; but we also find that the £5 shares pay 2s. 80c. for every warrant; so that instead of paying 2s. per £1 duty, we should only have to pay a little more than half a franc. It is with this object that we make the alteration in the value of the shares.

Dr. BARKER seconded the resolution.

Mr. FAUVEL pointed out that, according to company law, it was not for the company to pay the 2s. per share, but for those who wanted the ordinary shares converted into bearer shares. If they issued the shares as ordinary shares, which he considered they must do, then they must wait until the holder of the shares applied to them to have them converted into bearer shares, in which case the holder of them must pay the stamp duty. Another method of getting over the difficulty of the French law was to pay the Government something like 750c. on £10,000 worth of shares, and agree with the Government to pay so much per cent. on any dividend which was declared, which he considered an easier way of converting the shares than to pay on the share warrants.

Count de LEVIVA thought it was unfair to saddle the shareholders with paying this tax, and he also thought that Mr. Fauvel's proposal for getting over the difficulty would be much more expensive, because it would involve a payment every year.

The CHAIRMAN said the directors obviously did not wish to put the shareholders, or anyone else, to unnecessary expense, and, therefore, the plan they had adopted they considered a wise one. If they had a further issue of shares, and they were £5 instead of £1 shares, the shareholders would be more ready to subscribe if they thought they would have to pay about half a franc instead of 2 francs for every £1 share. At present it was only proposed to issue a limited number of share warrants; but, in any case, the directors had been advised that it was a proper course to pursue. It was in accordance with the wish of a large number of shareholders, especially of those who signed the Articles of Association.

The resolution was unanimously agreed to.

The CHAIRMAN proposed: "That the words of Article No. 86 from 'longer time' to the end of the Article be deleted, and the following be substituted therefore: 'As an additional annual remuneration the directors shall be entitled to 5 per cent. of the net profits available for distribution as dividend in each year after payment for such year of a minimum dividend at the rate of 7 per cent. per annum, such additional remuneration to be distributed amongst the directors, according to their attendances at board meetings.'"

Count de LEVIVA seconded the motion, which was unanimously agreed to.

Mr. FAUVEL in moving a vote of thanks to the Chairman and directors, said that the idea of going to West Australia and getting mines there was a very good one upon the part of the Chairman, and he hoped that the enterprise would prove successful. It was evident that the Chairman had no intention of keeping anything back from the shareholders, and that he honestly believed that the concern was a good one.

Mr. FARMER seconded the motion, which was carried, and the proceedings then terminated.

## BROOKMAN'S GOLD EXPLORATION AND FINANCE ASSOCIATION OF WESTERN AUSTRALIA (LIMITED).

The statutory meeting of the shareholders in Brookman's Gold Exploration and Finance Association of Western Australia (Limited) was held at Winchester House, E.C., on Thursday, when Mr. Arthur Sims, who occupied the chair, stated that out of the nominal capital of the company—£125,000—which was divided in 250,000 shares of 10s. each, 150,000 were issued, and 5s. had now been paid on them. They possessed three thoroughly equipped exploration parties on the gold fields of Western Australia, under the leadership of Messrs. S. W. Pearce, Foucher, and Allen. With regard to Mr. Pearce, his services would be of exceptional value to them in view of the fact that he had already assisted in discovering such valuable properties as the Lake View and the Great Boulder Mines. The directors had also looked after other branches of the company's business, and notwithstanding the stagnation in the mining market, they had been able to make cash profits on certain transactions, and they had holdings in various companies at prices which should return them a handsome sum as soon as the market revived somewhat. They were also at present engaged in the formation of a large and important mining company, which they hoped would prove successful. Altogether he thought they had every reason to be satisfied, more especially when he told them that they had made arrangements with Mr. George Gray to act as their legal agent and attorney in Western Australia—Mr. W. G. Brookman then described in detail the three exploration parties belonging to the association, considering that they had a very bright future before them. Speaking of the operations the directors had already made, he said he should not be surprised if, when the annual balance-sheet came out, they would find that they had made £20,000 by this means.—The meeting then terminated.

## COOLGARDIE MINING COMPANY (LIMITED).

The first ordinary general meeting of the shareholders in the Coolgardie Mining Company (Limited) took place at Winchester House, E.C., on Monday, when Mr. R. C. Power, who presided, stated that the property acquired by the company consisted of two claims of 12 acres each. The property was selected by the Idaho Exploring Company, and the development work, so far as it had proceeded, came quite up to the expectation that the reef was a rich one. Five tons of stuff taken from the 160 feet level had produced 3 ounces of gold per ton, and the tailings over 3 ounces. Water had been struck in the main shaft. The capital of the company was a very moderate one, but, thanks to the small amount of the purchase-money of the property, the remaining balance of which it had been arranged to pay at intervals, and the fact that there was no promotion money to be paid, they had fortunately been able to secure a cheap mine. The economy in the working of the mine was also a satisfactory feature. The directors were exercising a great deal of caution in the purchase of the extensive and costly machinery which would ultimately be required, and for the present the trial crushings would be carried on at the custom mills. By the time they were ready to erect the machinery, the best and most suitable manner by which to treat the ore would have been ascertained, and in addition, owing to the rapid development of the railway system, the cost of transportation would then be less than what it was now. Unlike other companies they were proceeding with the preliminary stages of their work slowly but surely. He had been asked why the shares in the company were at such a low price, and the reason he gave for this was that attention had not yet been drawn to the intrinsic value of their property. They possessed a mine which, they were informed, was showing a reef from 2 feet to 3 feet wide, carrying gold at 100 feet in depth, and yielding, on crushing, 3½ ounces to the ton. It was governed by a policy of strict economy, and managed on business lines. With those conditions, if the company was not a success he did not think it would be the directors' fault. He need hardly say that it was their intention to proceed with the development of the property with an energy that would not be less efficacious for being conjoined with prudence in method and economy in expenditure. He then moved the adoption of the report and accounts.—Mr. H. M. Payne seconded the resolution which was carried unanimously.—The Chairman moved the confirmation of the appointment of Mr. H. J. Dixon as auditor.—Mr. Bell seconded the motion, and it was agreed to.—A vote of thanks to the Chairman and his co-directors concluded the meeting.

## COROMANDEL GOLD MINING COMPANY OF INDIA (LIMITED).

An extraordinary general meeting of the shareholders in the Coromandel Gold Mining Company of India (Limited) was held at the company's office, 6, Queen Street Place, E.C., on Thursday, for the purpose of confirming the resolution carried at a previous meeting, altering the Articles of Association, in order to appoint Mr. Edgar Taylor, as one of the managers of the company.—Mr. Charles Tennant, who presided, formally moved the resolution, which was carried unanimously. The meeting then terminated.



## DOLCOATH, LIMITED.

(FROM OUR OWN CORRESPONDENT.)

(BY TELEGRAPH.)

The first annual meeting of shareholders in Dolcoath (Limited) was held on the mine, at Camborne, yesterday, and was well attended.

The CHAIRMAN (Mr. M. H. Williams), in moving the adoption of the accounts, said it was satisfactory to see that they had turned the corner, and were making a profit. They could only wish that the profit was greater, as it would be if only a better price for tin. At the beginning of the six months they were in a moss. Their shaft and machinery had run together, and they could not draw tin enough to make the two ends meet. Their sales of tin then were reduced to 105 tons a month, but now they had gone up to 171 tons a month. (Hear, hear.) The bottom of the mine was opening up as rich as ever it was; but it was a question whether they should go on attempting to increase the raisings, and return tin at this low price. Many people, he knew, felt that they should return all the tin they could, and make as much profit as they could, and no one would be more pleased to receive a dividend than he; but the question was whether they should sacrifice their property in that way. Perhaps the simplest way would be to steer between the two channels. The directors had discussed these things that morning, and it was very likely that the plan they had decided to adopt would be satisfactory to all. By the introduction of new appliances, they thought they would be able to reduce the cost of returning their tin very considerably, but at the present low price they must not go picking the eyes of the mine out by digging away the rich bunches they had in the bottom. They had, however, in the mine a lot of tin ground that could be worked at a good standard for tin, and if the cost of production could be reduced £5 or £10 a ton that would enable them to preserve their rich bunches. Comparatively poor ground was there no doubt, but that as far as the bottom was concerned the deeper they went and the more ground they opened the richer it was. They had had Mr. Morgan, the engineer, with them that morning, and they found that by making certain alterations in the mode of raising the men from their work, that instead of taking so many minutes to take them to and from it, they could put them down in so many seconds, doing away with their man engine and drawing them up with a skip from top to bottom. They had decided to adopt the principle there, so that in the course of time they would find there would be a great revolution in the working. They must, however, have time to put the thing in working order. People were saying that they had not done this or that in connection with the new shaft, but there was a good deal to be said on the other side. After the first sod was cut the work was done in a snowstorm, and this was followed by two of the wettest months that were ever known in Cornwall, and the only wonder was that they were not drowned out altogether. They had now put a cap on the top of it, and hoped to succeed in sinking it more rapidly. Of course, in a great undertaking like that there was a great deal to be considered, and, perhaps, they were a little premature in starting the shaft before the arrangement had been completed. There were all sorts of difficulties behind, and he could quite excuse their executive for not having gone to work quite so quickly as they might otherwise have done. He thought they would find that when once they got under weigh they would go down as expeditiously as could reasonably be expected in Cornwall. If they did not, he would be down upon them. (Laughter.) They had been in communication with a neighbouring foundry to put up an air compressor, to make arrangements for putting down air pipes, and to sink the Stray Park shaft by a boring machine. They hoped also to arrange with them to set 50 or 100 fathoms, or whatever it might be. He was going to advocate setting as much as they possibly could. In the western part they had a very large portion of virgin ground that had never been tried. Harriett's shaft was down to the 375, and they were driving the level west to come back towards Stray Park and since the old people had larger deposits of ore above, there was no reason why they should not have as great a bunch of tin there as eastward, which they were going to prove. They were driving this bottom level by the boring machine, and would sink the shaft by boring machine. They hoped it would go down as expeditiously as in the eastern shaft. If so, they would open the western ground very quickly, and if they could discover something there it would double the value of that property at once, and they had a new mine. Mr. Williams thought that the appointment of a resident engineer was money well spent, and in regard to the appointment of Messrs. Morgan as consulting engineers, Captain Josiah Thomas and Captain Arthur Thomas felt that this new shaft was a very great undertaking, and something over and above anything they had in Cornwall before, so that some one had been called in who had large experience in other parts of the world to give them some advice as to how they should proceed. Messrs. Morgan had also given their opinion as to the re-arrangement of the old workings of the mine, and he thought the company was deriving great benefit from their appointment. The preliminary expenses mentioned in the balance-sheet might seem heavy, but £1340 was spent in Government stamps. He thought they would all agree with the directors that it was not wise to divide any of the small balance, and though he did not like to look ahead, yet if they had a good profit at the end of March, they would have it divided. (Applause.)

Mr. O. WETHERED seconded the motion, expressing the hope that the directors would be able to pay a dividend in March, and saying his belief was that Dolcoath was sufficiently good, rich and permanent to pay large dividends even at the present price, or at a little lower price. (Applause.) His opinion was that the price of tin would rise, and he mentioned that he had been told by a metal broker that Mr. Strauss had just bought 10,000 tons from a syndicate.

The resolution was then put and carried.

Captain JOSEPH THOMAS gave a supplementary report on the mine, which spoke of several improvements.

Captain Thomas's report was also adopted.

Votes of thanks were accorded the directors and the Chairman.

The CHAIRMAN, in replying, denied that he had ever suggested that it was possible for the water from Carn Brea to come to Dolcoath, and said that when the disputes on the damaged land questions and other things had been settled, he would take his part in Cornish mining again. (Applause.)

Mr. C. V. THOMAS mentioned that the Carn Brea and Tincroft Limited Liability scheme was progressing satisfactorily, and that Lord Roberts and Mr. Basset, the lords of the mines, had agreed to put £8000 and £5000 respectively into the new concern. (Applause.)

The proceedings then terminated.

## SALT UNION (LIMITED).

The ordinary general meeting of the Salt Union (Limited) was held on Thursday, at Winchester House, E.C., the Hon. A. L. G. Ashley presiding. The Chairman, in moving the adoption of the report, said that he regretted they had once more to come before the shareholders with a disappointing report. The gross tonnage of salt delivered by the Union last year was 1,217,000 tons, against 1,284,000 tons in 1894, and 1,240,000 tons in 1895. The Board of Trade Returns for 1895 gave the total amount of salt exported from this country in 1895 as 741,000 tons, as compared with 769,000 tons in 1894, and the shareholders would understand that a portion of the decrease in the company's tonnage was due to a general falling off in the amount exported. Of the whole of the salt ports of the country, Liverpool was

the only one which had shown an increase in 1895, and that increase was all the more satisfactory when they considered that there had been a decrease in the tonnage of ships out of Liverpool. Their trade with the United States, although less in quantity than 10 or 12 years ago, showed some improvement. In Northern Europe, in spite of severe competition from German manufacturers and German State mines, they had increased their trade owing, he believed, to the superior quality of their products. In Belgium they had made satisfactory progress. To British North America a somewhat smaller amount had been sent, while the West Indies and Central South America showed signs of a revival. The board looked forward to an increase in the company's business in South America, as they had made some arrangements by which the business might be developed. In Africa there had been a decrease in the tonnage, and the Australian shipments showed a considerable decline, which, however, the board believed was only a temporary matter. It had been difficult to get ships going to Australia to take such a low pay of freight as salt. The sales in India had not recovered from the effects of the great coal strike of 1893, which paralysed trade, but he hoped they would shortly see an improvement. Increased shipments had been made to Burma, and steps were being taken to develop trade with the far East. The home trade of salt for domestic purposes had been well maintained, but the long frost of 1895 restricted the demand for the article of agricultural purposes. Should the mildness of the present winter continue they might look for a considerable demand for salt for agricultural purposes, as it was, after all, the cheapest and best fertiliser. The chief decrease of the year had been in the supply of salt for chemical purposes. The Alkali Union had entered into very strong competition with the company. The board had always been of the opinion that that Union intended to confine itself entirely to the chemical trade, and had therefore made contracts with them at very moderate prices in the past. The Alkali Union, however, had evidently not been of that opinion, and he now thought that the Salt Union would have to utilise its resources, and, if necessary, carry the war into the enemy's country. They had an abundance of brine, and, instead of manufacturing salt at a low price, it would be better to manufacture higher-priced chemicals. The company could start with the newest and most improved plant, and would thus be able to hold its own. It was quite impossible to sit still and allow the Union to be driven out of the salt trade without making some effort. The motion having been seconded by the Hon. Charles W. Mills, after some discussion it was unanimously agreed to.

## WEST AUSTRALIAN JOINT-STOCK TRUST (LIMITED).

Mr. James Judd, J.P., presided yesterday afternoon at the statutory meeting of this company at Winchester House, and said that the company was formed with a capital of £250,000, and that, applied for, allotted, and guaranteed, about one-half had been disposed. They had ample working capital for the purpose of carrying on a prosperous financial business. Unlike very many companies, they were not burdened with any expenses of formation, and their founders' shares were unlike other founders' shares, because they were paid for by the holders. They had acquired an interest in a large mining property in the Hannan's district, in which they were associated with some of the largest and most important of the financial companies in London. They also had an interest in a company about to be issued, to deal with six groups of mines in North Australia, in connection with which they were assured of very considerable returns. The trust had already taken part in the flotation of an important mine in the White Feather district, and had received a substantial amount for their share in the matter, and they were about to float a mine in the Burbanks district. Further, they had an interest in the Gold Mines of Western Australia, and had already made a cash profit of £7500 in connection with it. A vote of thanks to the Chairman terminated the proceedings.

## WEST AUSTRALIAN MINERALS AND FINANCE COMPANY.

The ordinary general meeting of the West Australian Minerals and Finance company took place at the Cannon-street Hotel, on Monday, when Major-General E. Harding Steward, C.M.G., presided, and in moving the adoption of the report and balance-sheet, said the directors had been enabled to do some very good business, and if only the debts owing to them had been paid they would have a handsome balance at the bank. The resolution having been seconded, Captain Dawson (managing director), replying to several shareholders, stated that Mr. Elder resigned his position as director in September last on account of ill-health. Almost all of the money subscribed had been devoted to the company's operations. The promoters had not yet been paid and would not be until a dividend was paid. The Eclipse property was a splendid one, and had greatly benefited the company. They owned five leases on the Lady Montefiore property. Some dissatisfaction was expressed that the company's profits were on paper only, and Mr. Bennett moved that the meeting stand adjourned for three months to enable the directors to realise some portion. Miss Urwin seconded. The amendment was lost, and the report and balance-sheet adopted. The Chairman then moved that a dividend at the rate of 50 per cent. be declared, payable half in script forthwith and the other half in cash on or after May 30 next. Mr. Dugwell proposed, as an amendment, that a dividend of 100 per cent. be declared, payable forthwith in script, and that the directors be recommended to declare an interim cash dividend at the earliest possible date. The directors accepted the amendment, and it was carried unanimously. Another resolution, urging the directors to voluntarily pledge themselves to accept their fees in script until the shareholders got a 10 per cent. cash dividend, was also carried. Mr. Dugwell moved a vote of thanks to the Chairman, his co-directors, and the officials. The motion was seconded and agreed to, and the Chairman and Captain Dawson replied. An extraordinary general meeting was then held to consider a proposal to increase the capital from £30,000 to £100,000, by the creation of 70,000 £1 shares. Captain Dawson explained that that morning the Cuthbertson had voluntarily wound up its affairs, and its funds had been absorbed by that company, who would now have to pay them the same dividend—100 per cent.—as they had declared for their own shares. Having absorbed their funds, they now proposed to amalgamate with the Cuthbertson Syndicate, and pay the shareholders in it five £1 shares for every £5 share they held. There were about 70 or 80 shareholders in the Cuthbertson holding between 2000 and 3000 shares. The Chairman then moved the resolution to increase the capital. Mr. Haddon seconded the motion, and it was agreed to.

## THE CUTHBERTSON EXPLORATION SYNDICATE (LIMITED).

The ordinary general meeting of the Cuthbertson Exploration Syndicate (Limited) was held at the Cannon-street Hotel, on Monday, Major-General E. Harding Steward, C.M.G., presiding, in consequence of the indisposition of Mr. Haddon (Chairman of the company). The Chairman, in moving the adoption of the report and balance-sheet, and the declaration of a dividend of 100 per cent. in shares, explained that the object of the syndicate having fallen through, a result due to the breaking up of the Cuthbertson exploration party, it was now proposed to amalgamate with the West Australian Minerals and Finance Company. Already this company had had the use of part of their issued capital. Replying to questions asked by shareholders, the managing director (Captain Dawson) said the directors had not been paid their fees in cash, except the first quarter's, and even then they bought shares with the money. The amount which the Minerals Company borrowed from the Cuthbertson was about £1437. The script in which the shareholders would receive their

dividend would, he assured them, be a very good marketable one. Only one property was ever placed at the disposal of the company—the Sir Garnet—but this slipped out of their hands. The Chairman, in putting the resolution, said that, although the dividend was dependent on the decision of the shareholders of the Minerals Company, he had not the slightest doubt but what they would approve of the proposal. The resolution was carried unanimously, and a vote of thanks was also accorded Captain Dawson for the excellent services he had rendered the company. An extraordinary general meeting was then held, to consider the expediency of amalgamating the company with the West Australian Minerals and Finance Company. The Chairman briefly moved the proposition, which was seconded, and agreed to *nem. con.* A vote of thanks to the Chairman for presiding concluded the meeting.

## MYALL'S UNITED GOLD MINING COMPANY (LIMITED).

The statutory meeting of the shareholders in Myall's United Gold Mining Company (Limited), took place at the offices of the company, 13, St. Helen's-place, E.C., on Thursday. Mr. C. B. Dobson, who presided, said, when the property now possessed by the company was first offered to them, they took every step to verify the statements then made in reference to its value and stability. Fortunately they had a gentleman—Mr. Danvers Power—on the spot at the time, and in whom they knew they could place the utmost confidence. He would not read the whole of this gentleman's report, but a few extracts. The property, Mr. Power stated, was situated in Narromine, New South Wales, and was not very far from a railway station, a very important point in their favour. The leases were on a Myall flat in the Peak Hill Division of the Mudgee mining District, and comprised 38 acres. Several of the reefs had been proved, and it was found that they varied in thickness, averaging 2 feet. They had already been worked in a rude fashion by the natives, when the average yield was 1 ounce 2 dwts. of gold to the ton, with an average value of £3 19s. per ounce. Guided by these facts the directors felt justified in acquiring the property, and they were now proceeding with the development work. They were going ahead rather slowly, but the shareholders must understand that there were many difficulties to contend with in all preliminary mining works. Before starting work they appointed a manager, and the gentleman whose services they had secured was considered to be a very excellent servant. The latest information they had received from the mine was that it was looking well; 500 tons had been brought to the surface, and the mill would be ready to start as soon as the rains set in. The new shaft was 100 feet deep. Concluding, Mr. Dobson said the directors would make every effort they could to ensure the complete success of the company. Subsequently, replying to questions put by shareholders, the Chairman said the working capital amounted to £73,000, £47,000 of which was in cash. The company had certain water rights which they hoped to make good use of. A vote of thanks to the Chairman and directors terminated the proceedings.

**BROKEN HILL PROPRIETARY.**—It is officially reported that for the week ending the 27th inst., 6438 tons of ore were treated, yielding 419 tons of lead, containing 118,864 ounces silver, also 1058 tons treated by amalgamating and leaching plants, producing 11,528 ounces silver. The price of the shares in Melbourne is £2 11s. buyers.

The LIST will OPEN this day, SATURDAY, the 29th day of February, and close on or before TUESDAY, the 3rd March, at 4 o'clock for LONDON, and at or before Noon on the following day for the COUNTRY and the CONTINENT.

## THE ANGLO-FRENCH GOLD FIELDS OF AUSTRALASIA, LIMITED.

Incorporated under the Companies' Acts, 1862 to 1895.

**CAPITAL** £500,000, IN 500,000 ORDINARY SHARES OF £1 EACH. 200,000 are for working capital, of which 100,000 are reserved for future issue. 100,000 Shares are now offered for Subscription. Payable, 2s. 6d. on Application; 2s. 6d. on Allotment; 5s. 14th March; 5s. 15th April; 5s. 15th May, 1896.

## DIRECTORS.

The EARL OF KILMOREY, K.F. (Chairman of Wentworth Gold Fields Company, Limited). Col. W. S. BROOKE (Director of Kintore Gold Mine, Limited). D. E. CARDINAL, Esq. (Director of Manchester Brewery Co., Limited). T. H. LAMBERT, Esq. (Director of Humber and Co., Limited). J. E. W. MAUNDER, Esq. (Director of Weld Hercules Gold Mines, Limited). J. E. PERRY, Esq. (Director of Aladdin's Lamp Gold Mines, Limited). \*LORD NORREYS (Director of Oakes' Syndicate, Limited). \* Will join the Board after Allotment.

## BANKERS.

FARR'S BANKING COMPANY AND THE ALLIANCE BANK, Limited, 77 Lombard Street, and Branches.

BANK OF AUSTRALASIA, 4, Threadneedle Street, E.C.

## SOLICITORS.

Messrs. C. R. SAWYER AND ELLIS, 7, Laurence Pountney Hill, Cannon Street, London, and 15, Place Vendôme, Paris.

## BROKERS.

Messrs. P. BUCHAN AND CO., 5, Angel Court, E.C.

## AUDITORS.

Messrs. CARNARY HARROWER AND CO., Chartered Accountants, College Hill Chambers, E.C.

## SECRETARY AND OFFICES (pro tem).

WILLIAM HARROWER, Esq. 31, Lombard Street, London, E.C., and 8, Rue de Mogador, Paris.

## ABRIDGED PROSPECTUS.

This Company has been formed for the purpose of conducting a business of a Financial, Exploring, and Mining Corporation in Australasia and elsewhere. The Company acquires the following properties, details of which are enclosed:—

(a) Three Government leases of an extensive landed estate situate in the Northern Territory of South Australia, containing an area of about 3942 square miles—that is, over 2,500,000 acres.

(b) An exclusive license for a limited period, to prospect for minerals over a belt of about 640 square miles (part of the above), which is believed to be highly auriferous.

The Company also acquires the benefit of Agreements for the purchase of the following gold mining properties, which have been carefully selected, on what the Directors consider very favourable terms:—

(a) A mining property in New Zealand, consisting of about 128 acres and equipped with a 33-Stamp Mill, Cyanide Plant, &c., which has been favourably reported on by several experts of good standing. (Described in an Agreement dated the 25th October, 1895, made between the May Queen Gold Mining Company of the first part, George Robson of the second part, and Oscar Heindorf of the third part.)

(b) A mining property of about 156 acres in extent, also in New Zealand, which is equipped with a 4-Stamp Mill, and has been favourably reported on. (Described in an Agreement dated the 14th January, 1896, and made between Wm. John Farrell of the one part, and Oakes' Syndicate, Limited, of the other part.)

(c) A mining property of 24 acres in the White Feather District of Western Australia, also favourably reported upon. (Described in an Agreement dated the 22nd February, 1896, and made between Arthur Granville Adams of the one part, and Oakes' Syndicate, Limited, of the other part.)

It is intended to form subsidiary Companies to acquire and develop the properties now and hereafter to be acquired, and as the Company will retain large interests in these Companies, handsome profits should very shortly be made.

The Directors have already received favourable offers for the acquisition and development of the Northern Territory for formation of subsidiary Companies. Shareholders of the Company will, as far as possible, be given the first right of applying for shares in the subsidiary Companies which may be brought out by this Company, a privilege which, as is well known, has proved of great value in parent Companies of this character.

The marvellous resources of the West Australian Gold Fields have now been placed beyond the possibility of doubt, whilst it is admitted that only a small portion of the vast mineral wealth of the Australian Continent has been exploited. It will be therefore apparent that a well-managed Company should possess excellent opportunities for the profitable investment of capital.

Messrs. F. E. Nash and Company, Limited, who are the Vendors and Promoters, have fixed the purchase price at £300,000, which includes a profit on re-sale. This sum is payable as to £25,000 in Cash and £275,000 in Shares, leaving £275,000 to provide for working capital.

For contracts see full prospectus. Prospectuses and Forms of Application may be obtained from the Bankers and the Company's Offices.

LONDON, 28th February, 1896.



## THE GOLD FIELDS OF MATABELELAND.\*

By Mr. F. G. SHAW, F.G.S.

**B**EFORE proceeding to discuss the gold industry of this new territory, it is necessary to describe the country in which the gold fields exist. Until the beginning of the year 1894 the country was unknown. It was inhabited by one of the most blood-thirsty races existing. Rumours of immense ancient workings were circulated by the few hunting men, who had penetrated into its interior, but Lobengula (the late king) prohibited anyone from visiting these workings, and the Matabele, acting under his orders, prevented any of the few traders from investigating them. By the beginning of 1894 Lobengula was overthrown, and the Chartered Company were in possession of the Matabeleland, a country half as large again as England, possessing a warm, fine, and in most places, a healthy, climate. It forms a part of the big tableland which exists in the central portions of the South African Continent. The average elevation of the whole of this country is 4700 feet above the sea level. Lying partly in the tropics, it has all the warmth of a tropical country, tempered by an elevation sufficiently great to render it an extremely pleasant climate for Europeans. The rainfall appears to be regular, and continues through November, December, January, and February. The rains are not heavy or excessive, as far as we know. Thunderstorms occur before and after the close of the rainy season. The country is an extremely well-watered one, and numerous large rivers exist, having many tributaries. The gold industry is not likely to suffer any hindrance from any failure of water, and although water power during the whole of the year will not be obtainable, save in a few instances, there will always be sufficient water, with judicious conservation, to supply all the necessities of the gold mills.

In the Victoria Falls on the Zambesi, some 150 miles from Bulawayo, there is undoubtedly sufficient force to run all the machinery required for the next 20 years, in the numerous gold districts, and a company has already been floated to utilise this source of power. The Victoria Falls on the Zambesi, of which I will now exhibit a few slides, are second to none either in size or magnificence.

Timber, as far as firewood is concerned, is plentiful, and in the fine forests to the north of Bulawayo exists, practically speaking, an inexhaustible supply of splendid hardwood timber, suitable alike for mining, ornamental, and household purposes. I have here a specimen of such wood taken by myself from some farms of 25,000 acres, which are the property of the St. Helen's Development Syndicate. According to the computation of the Government Surveyor, at least four loads of this timber exist to the acre. When I inform you that some million acres of this timber forest are either pegged by private syndicates or held as reserves by the Chartered Company, you will at once see that no scarcity of timber is likely to occur. Apart from these forests, excellent mining timber is common in the vicinity of many of the various gold districts. The Mahoba-Hoba and Mapanie, the Knobydorne, and the Hardenwood are among the best timbers for mining purposes which exist. These trees, however, do not grow to a very great size, but are sufficiently large for all underground timbering purposes. We have, unfortunately, two enemies to contend with, the White Ant and the Borer, which attack most of the other woods, so that apart from the timbers which I have just mentioned, the other varieties can only be used for temporary purposes.

Coal fields have been found in various parts of Matabeleland of a similar character to those existing in the Rand district, but no work has yet been done on them, and it is impossible to express any opinion as to their permanency.

Iron ores of the finest quality are abundant, and have been largely worked for a considerable period of time by the natives of the country, and it may be considered that from this source alone, a most important industry is likely to arise, and eventually to rival the output of other countries.

The labour supply is, at present, not in as good a position as it may confidently be expected to assume within a short period. The natives of the country, living as they have done for many generations as hunters and warriors, are adverse to manual labour, and are, besides, green at any work. The Chartered Company are wisely encouraging these men to work, and there is no doubt that from the natives there, the work required in Matabeleland can be supplied. There is besides this, however, on the eastern boundary a very large supply of native labour. The countries which contain this working population have been supplying Kimberley and the Rand for a number of years, and the Shangans, Machoopies, &c., are the best native labourers in South Africa; and it is more convenient for them to work in Matabeleland and Mashonaland than to perform the journey of 600 or 700 miles to reach the Rand, or 900 or 1000 miles to go to Kimberley. The various companies at work in Matabeleland can, therefore, regard the question of the labour supply with satisfaction.

Although Bulawayo is 600 miles from the nearest railway, transport is by no means very difficult. The average price asked for freight from Mafeking to Bulawayo is about £20 per ton, and although this seems at first sight to be a heavy charge, still it does not materially affect the total expended in developing a mine and erecting machinery, &c. Neither should the time occupied in transport present any difficulty to the rapid development and success of the gold districts. Foresight and economy are undoubtedly wanted here as elsewhere, both in ordering goods in sufficient time to arrive on the ground when required, and in checking any needless expenditure of money, or loss of time, caused by the omission of any necessary portion of the machinery.

The gold belts of Matabeleland cover, roughly speaking, one-third of the area of the country, and already over 1800 miles of reef have been pegged. Most of the ground thus pegged consists of reef which have already been worked by the ancients. Vast as this amount undoubtedly is, it does not really represent to the ordinary miner the extent of reefing ground which is really held by the people who have pegged them, for under the mining laws of the Chartered Company, the pegger of the outcrop of any reefs, or series of parallel reefs, has the right of following these down to any depth he chooses, so that no deep level claims, or block claims as they are called in Australia, are necessary; and, consequently, a mile of reef pegged in Matabeleland is equal to four or five pegged on the Rand, or Australia. But few virgin reefs have up to the present been either pegged or looked for, and I anticipate a great future for the gold industry when legitimate prospecting is carried on. It has been a simple matter to peg out the old workings or the reefs existing on the extensions of such old workings. These old workings are at once apparent and have not required that careful and systematic search which has been given to the discovery of reefs in Australia and America; consequently, unskilled men were placed on equal terms with the experienced prospector. It has been, however, decidedly more difficult to discover the value and size of the reefs so worked by the ancients, as they have sunk

on an average to over 30 feet, and in the course of the centuries which have elapsed since their work was performed, the mullock and debris surrounding the holes and shafts and stopes have silted in and buried the reefs where left by the ancients to a depth of from 20 to 30 feet. It has, therefore, been necessary to penetrate, by means of shafts, the mass of detritus existing over the lodes before discovering their value; in most cases rich reefs have been found.

The only indication which the mining prospector in Matabeleland has prior to the discovery of the reef by shaft sinking, was the debris or mullock left on the surface by the ancients. From the result of 18 months' work in Matabeleland, the author would be inclined to estimate the average value of the smaller fragments round these holes as giving at least 7 dwts. of gold to the ton, and has obtained from average samples existing round some of the dumps left as much as 2½ ounces to the ton, while individual floaters are very commonly found carrying from 2 to 20 ounces to the ton.

The reefs discovered at the bottom of these ancient workings, as well as those outcropping through the country, belong to two distinct varieties—the interbedded, which are the most common reefs in the country, and the fissure lodes. The geological formation of the country containing the interbedded reefs is an upturned series of shales, slates, and schists, and it is in the planes of the stratification of these rocks that the interbedded class of reefs have been formed. Before this geological series were upturned and foliated, as they are now, they had been deposited as a series of mudstone, clays, and shales in a horizontal position. After their tilting, probably caused by the natural contracting of the earth's surface or intrusive action of masses of igneous rock, the lines of their stratification became channels through which infiltrating water could penetrate. This water naturally has followed the line of least resistance, and when carrying any materials in solution has deposited them, when the circumstances were favourable, in the ground through which it penetrated. When the ground forming these channels was particularly soft and soluble, it would be washed away and displaced, and masses of minerals of the nature of quartz, varying in thickness, would be formed in its place, thus producing the reefs known as interbedded reefs, and accounting for the inconsistent and varying character of these lodes. As the lines of stratification through which the water passed would frequently become impervious, so no doubt the water, following the line of least resistance, would be diverted, probably through some cleavage lines, and seek some parallel plane of stratification in which an easier channel would exist, depositing always when the circumstances were favourable, the minerals it held. The above fact has always rendered this class of reefs of a difficult nature to mine.

Fissure veins—the other class—exist alike in the schistose and in the granite country, which rock occurs throughout a great part of the country. These veins are formed by deposition of minerals carried by the water penetrating through fissures or cracks existing in the crust of the earth, and cutting through the various strata they meet with, with no regular or known law, and without regard to the strike or dip of the country.

These infiltrating waters, laden with the minerals forming both these classes of reefs, would naturally alter the country rock in the vicinity of the channels through which they passed, and so the shales and mudstone, &c., have been altered to schists and slates, &c. In the case of the interbedded class of reefs, it might be expected that series of parallel veins close together would exist in rocks offering any opportunity for such infiltrating waters, and thus many parallel reefs might be expected in them. This is what happens in the interbedded reef country of Matabeleland; as many as 10 parallel veins within a short distance have been discovered to be auriferous, and in one adit, in the Germania, belonging to the St. Helen's Development Syndicate, eight of these parallel reefs exist within 85 feet, while the average number of three parallel reefs have been already discovered in the very large and valuable holdings of this company. It might be expected from the geological conditions of the country that the whole of Matabeleland would contain reefs; that this so is beyond doubt, but it has not been discovered that these reefs are invariably auriferous. The prospecting (to use the word in its true sense) of this vast country, containing as it does so very few mining men, at present has not, in the author's opinion, been more than begun, the reason of the pegging of such a large number of reefs has been due to the indications left by the ancients. They, however, only worked on the reefs they discovered and which were at that time outcropping above the surface of the earth. As the denudation which is constantly going on over the world exists here, it will be apparent that many reefs that did not then outcrop, must be doing so now, and the legitimate prospecting of the country for gold reefs, if undertaken by careful, hardworking, and experienced prospectors—a class which has not, so far, existed in Matabeleland—would no doubt lead to a much larger area of auriferous ground being taken up.

The following questions, which should now be considered in connection with these classes of reefs, are:—Do these reefs penetrate the ground to any depth? and do they carry their gold downward as well as on the surface? As far as it is possible to judge from the development work already done, the reefs not only exist to the 300 feet and 400 feet levels, but are in most cases even strong and rich when cut at the bottom of the stopes of the ancients, while the gold has been declared by those who have sunk these deep shafts to be equal, if not better, in quantity as depth is attained. From a personal statement to the author by Mr. Pauling, the Minister of Mines for the Chartered Company, it appears that in one old working in the Lomagunda country, the excavations left by the ancients in one spot are 1000 feet in length, 500 feet in width, and 200 feet in depth. At the bottom of this immense open pit the debris had fallen in, and in this a shaft had been sunk to a depth of 70 feet before it cut four auriferous reefs of a distinctly payable character. In this case the ancients have gone down to an extent hitherto unknown, and the immense hole they have left reminds one of the pit of the Kimberley Diamond Mine. In the 62 shafts which have been sunk in Matabeleland for the St. Helen's Development Syndicate the author in the majority of instances obtained payable reefs at the bottom. It must be evident from these facts that those old miners did not stop working because the lodes had either ceased to go down, or failed to contain gold. With their want of explosives, mineral appliances, ventilating fans, hoisting plants, &c., they would be unable to work at any great depth. Their dead work was probably done by the use of the pick, hammer, the wedge, and the action of water on heated rock. Instances of this latter method of mining are very common there, and the smoke arising from the fire introduced in their mining operations still hangs on the walls of the old stopes. In many cases they have undoubtedly ceased work when they reached the water level; they would have, in the first place, no method of pumping or contending against the water, which would undoubtedly stop any attempts at using fire as an agent for disintegrating the rock. The necessary ventilation of such a method of mining would be most difficult to accomplish. The water level, too, would undoubtedly carry the line at which sulphurets and refractory ores existed. This would render the ore of little value.

As far then as the work has gone, we do not find any absolute proof that the reefs are likely to pinch, or become less auriferous. Certainly, it cannot be adduced as a reason in favour of such a supposition, that the old miners have ceased operations there some time; and, as I have said before, the class of interbedded veins (the most numerous in Matabeleland) are a more difficult and less permanent character to deal with than the fissure veins. Still, we have interbedded veins to a great extent, such as the Sheba, &c., whose payable qualities are thoroughly known. The undoubted length of these reefs is an indication that they should extend to a considerable depth below the surface, and the great length of the ore shoots, longer for interbedded veins than in any other part of the world, seem to indicate permanent gold in these reefs as they go down.

It will be interesting just to refer briefly to the theories connected with the class of ancient miners in this country, and to the people who formerly worked there; most of these views are pretty well accepted by the people who have made a study of the circumstances, and the data which exist. So far, no official record has been found referring in any way to a bygone race of gold workers. The Phenicians, seem by popular consent, to have been the ones who originally opened or started work in this part of Africa. Their well-known navigating powers, their position as merchants in the olden days, and the fact that they traded gold, are matters of history. No records have been found in South Africa with regard to these long-past miners. The oldest Portuguese records state that when the Portuguese landed on the African coast 400 years ago, the curious workings were alluded to by them as old workings; but although the Portuguese were then the leading race for enterprise and push, they do not seem to have been able to discover anything authentic, or even to hazard any opinion who these people were. It is hoped that the records in the Vatican may contain some chance allusion to this interesting fact, and they are now being carefully searched by a savant with the hope that some light may be thrown on this extremely interesting question. As far as one might be allowed to hazard an opinion, the author considers that the original workers of these mines were an educated Caucasian race, and that since that time these mines have been worked by at least two other distinct races of gold miners. It is probable that the earliest race, if it was the Phenician, employed the good old-fashioned method of using the Gideonites in that part of the world to be hewers of wood and drawers of water to the congregation, and had probably conquered and reduced the negro races of South Africa, using them as labourers in their mines. Dissensions or wars at home might have interrupted them when in the pursuit of this industry, and cut off from their home and supplies, a partial evacuation of the country may have taken place, followed by a rising of the subservient race, and the total extinction once and for all of the dominant race. Their buildings, their tools, and various appliances would very likely be used by the men whom they had partially educated, and the rougher and less civilised method of mining would very probably be carried on by those who had begun to appreciate the value of gold. This would account for the total extinction of any of the early tools used. Whether or not this has been the case, it is certain that the earliest mining efforts have been followed by very primitive methods of mining, which would indicate that the rocks and dumps of stone hitherto mined and very likely but roughly sorted, have been turned over and over with the view of rich pieces of quartz, which had been left, being obtained. Work has also been carried on in a primitive style underground; "striking" stones of tough igneous rock are very numerous, and where the gold has existed on one wall of the reef more than the other, the auriferous quartz has been chipped off by these striking stones. The ruins which exist are in many cases in good preservation and are extremely interesting. It has been considered that Zimbari was built by people of the Phallia religion; but there is a great deal yet to be found out about these ruins. When in the northern parts of the Transvaal visiting the old workings there, the oldest resident, an aged Boer, whose parents settled there when he was a boy, informed the author that the natives at that time spoke to his father of a race of black men with long hair who worked these mines. The author considered at the time, and in an article written in 1892 on the subject, that it may have been possible that natives from India had visited the shores of Africa and worked for gold there as they worked in the Mysore and other gold districts in India. The similarity of the old workings seemed to me to be a strong argument in favour of this. Phallic worship is common in India, while the monsoons would form a ready means of locomotion from one place to another. Copper has undoubtedly been worked in the Transvaal by some old miners. This, again, is a mineral highly prized by the Indians, and also worked by them. So it may be quite possible that the Indians are, to some extent, answerable for some portion of the old workings which we now find. When these old workings were first discovered—their extreme age was not suspected—the filling up of the shafts was considered to be due to the deliberate action of the natives living in the country. The author's investigations have convinced him that the filling up of these old workings has been due to the action of time, and places the date of the earliest mining at a very remote period. The only crushing appliances now found are a vast number of mortar holes with oblong rounded stones, which have evidently been used as pestles. These holes are found in tough igneous rock, generally in the vicinity of streams—most often in the rivers. The auriferous ores were evidently brought to these mortars and pulverised, water being allowed to flow into them and carry off the light matrix, leaving the gold at the bottom of these holes; this could easily be extracted by means of clay on short sticks, the gold being again freed by the immersion of this clay into vessels holding water. Time and labour being of little value, this laborious process would pay well with the rich class of ores which exist in Matabeleland.

We will now turn to some practical work, the result of which will undoubtedly carry greater weight than any opinions expressed on the general aspect of the country. These plans, lent me by the courtesy of the St. Helen's Development Syndicate, present a small portion of the work they have been doing in Matabeleland. They have put down 62 shafts in different parts of this large country, and have in this manner done over 3000 feet of dead work. The result of this dead work has been the discovery of a number of very payable lodes.

The average width of the reefs discovered in these 62 shafts is considerably over 2 feet, whilst the assays from fair sections of the reefs, taken in the most careful manner, give a result of over 1 ounce to the ton. The ore, as far the work has been done, appears not to be generally of a refractory nature, although, of course, refractory ores exist and the author does not anticipate serious difficulties from this reason, provided always that skilled men are employed.

The next is the Germania reef. This is situated in the Belingwe district; it is of the interbedded class of reefs, and has been most extensively worked by the ancients. One shoot of gold, which they have worked from the surface down, extends 2200 feet in length, and they have worked this lode to at least 45 feet from the surface. In No. 1 shaft, at a level of about 60 feet from the surface, the bottom of the old stopes was

\* From a paper read before the recent meeting of the Federated Institute of Mining Engineers.



struck, and two parallel reefs were discovered, 3 feet of rock separating the two reefs. One of these reefs, 22 inches in thickness, yields an average of 18 dwts. to the ton, whilst the other, which is about 2 feet 6 inches in thickness, yields an average of 1 ounce 5 dwts. to the ton.

The next reef is the Theta in the Sinombi district. Here another long line of old workings exist, in which two shafts have been put down, and two reefs have been struck. About 3 feet of solid matter in one reef gives a return of over 5 ounces to the ton, whilst in the other shaft 2 feet of the reef assays from all to all 2 ounces 3 dwts. The old workings, as in the Germania, are deep and continuous, and from panning the stone round the dumps left it is discovered that the smaller stones are very rich, in the case of the Theta giving a return of over 2 ounces to the ton. It has a most favourable position as far as the water is concerned.

Here the author described several mines of great value which are owned by the St. Helen's Development Syndicate, and exhibited several excellent photographs of the country.

In conclusion, the author anticipates that, with careful management and able control, the gold reefs of this country will eventually produce as much gold as any country in the world, and it seems probable, after a consideration of the vast nature of the work which has been performed here in bygone ages, that to this country the Old World owed to a great extent its supply of gold.

## GOLD MINING IN THE HAURAKI DISTRICT. NEW ZEALAND.

By HENRY M. CADELL, B.Sc., F.R.S.E., F.G.S., Vice-President Mining Institute of Scotland.

(Continued from page 236.)

NONE of the local batteries in this district are provided with cyanide plant, and there can be no doubt that in the past enormous quantities of gold have been run off with the tailings into the sea. There is in the deeper workings, some of which are carried on at a level of 500 feet below the sea, a considerable influx of water, and this can only be overcome by expensive pumping machinery. The Big Pump shaft is the mainstay of the deeper mines. The shaft was originally sunk by the Imperial Crown Company, whose capital was exhausted before it had prospected the lower levels. It is sunk to a depth of 650 feet below sea level, and at the mouth is 12 feet by 8 feet in dimension. The pumping engine, erected in 1870, is single-acting, of 250 horse power, with an 82 inch cylinder and 8 feet stroke, and is capable of raising 84,000 gallons per hour. At 640 feet depth a level drive runs northwards and southwards from the shaft, and drains the workings of several mines in the vicinity. The pump is now the property of the Thames Drainage Board, and the funds necessary for its operation are provided by a joint system of contributions from the Thames County Council, Thames borough, and the nine mining companies which benefit by it. The annual cost amounts to about £4000, nearly half of which is at present defrayed by the May Queen Company, whose workings necessitate the water being kept down to the 500 feet level. That there is still abundance of payable ore in the numerous reefs of the Thames district cannot be doubted. It will, however, be necessary, if the field is to have a prosperous future, to lay out more capital, and work on a larger and more economical scale than formerly, so as to obtain good returns from the large masses of low grade ore that are plentiful in the district. The Moanatairi tunnel, which runs in from the shore for a distance of 3125 feet under the mountains, might with advantage be extended so as to enable all the reefs above and around it to be worked cheaply, level free. If this were done, the expense of pumping would be saved to some mines, as there can be no doubt that much valuable ore can be got by this means, without sinking below sea-level. The mining school at Grahamstown-on-Thames, of which Mr. Park is the head, is a most useful institution. Practical and theoretical instruction in different branches of surveying and mining is given to students from the whole of the Auckland district. About 35 students were registered last year, and the course of instruction is of great advantage to young men who wish to qualify for mine managers. Those who have gone through the course, and have been diligent students, have generally been successful in getting good situations in this and other colonies, where theoretical, as well as practical, mining knowledge is in much demand. While speaking of the Thames gold field, mention should be made of Messrs. Price Brothers' foundry and engineering works at Grahamstown. Mining machinery of all sorts, including batteries, pumps, and engines, are made, and all the work turned out is of first-class quality, as can be attested by the managers of the mines in the district. It need scarcely be said that the existence in their midst of such an establishment is of great advantage to the Hauraki gold fields. The want of such works in Western Australia, where the nearest machinery works are about 2000 miles from the gold centres, and it often pays best to bring plant out from home, must, while it exists, be a serious drawback to that colony; and, in comparing the two places, this important advantage for Hauraki, and, indeed, for the whole of the New Zealand gold fields, must not be overlooked.—*Ohinemuri County.* This is at present by far the most important of the Hauraki gold fields, its production last year being 110,000 ounces—more than twice that of all the others put together. The Ohinemuri mines have this further attraction, from an engineering and scientific point of view, that they exemplify the immense advantage to be derived from the adoption of the most modern system of gold extraction. The difference between profit and loss depends, in many cases, not so much on the mine as on the mining engineer and metallurgist, and the great feature, to the writer's mind, of this district is the success which has crowned the mines that are conducted on the newest scientific principles. The principal gold fields in this county are those of Waihi, Waitehauri, and Karangahake, while other mines have to some extent been opened up in the secondary gold fields of Owharua, Komato, and Maratoto. This does not, however, include all the auriferous ground, but only a small part of it, as the amount of country explored is comparatively small, and there is every reason to expect that new gold fields will be opened up in the wide tract of rough forest country, between Waitehauri and the east coast, which, owing to its inaccessible character, has as yet been scarcely penetrated by the white man.—*Waihi.* This district differs in topographical characters from the surrounding reefing localities. The reefs occur on rounded knolls or small hills rising from a swampy undulating plain near the head of the Ohinemuri river. The plain is an old broad valley or strath, surrounded by mountains or low ranges of volcanic rock, and the inequalities of its bed have to a greater or less degree been covered up with the deposits of breccia, ash, and rhyolitic rocks ejected, as already mentioned, during the latest series of volcanic eruptions in the Pliocene period. The chief lode is the Martha, now belonging to the Waihi Company, which runs through the top of the Martha hill and disappears at each end under the rhyolitic lavas of the plain through which the hill forms a protruding knoll. The reef, which is a very

large one, was unsuccessfully worked for about eight years before the present company acquired it. When the Waihi Company began operations they obtained at first about 65 per cent. of the gold and 35 per cent. of the silver by dry crushing and pan amalgamation—about thrice as much as was extracted by their predecessors. After subsequent trials of the Cassel process, it was found that the extraction could be brought up to 90 per cent. of the gold and about 50 per cent. of the silver, and since then all the bullion has been obtained by this method. The cyanide plant and battery power has been increased lately, and at the time of the writer's visit the battery consisted of 90 heads of stamps, the cyanidation being carried out in 24 vats of 24 feet diameter, with the necessary precipitation boxes, &c. The tailings which had accumulated before the introduction of the new process was sold for £5000 to the Cassel Company, who began their recovery operations in February, 1894, and have since treated about 20,000 tons, from which they have obtained bullion to the value of £25,000. The diagrams show the general arrangement of the plant used by the Cassel Company at Waihi. The success of this company led to the adoption of the cyanide process by the Waihi Company.

After a series of careful experiments in wet and dry crushing the Waihi Company found that the best results were obtainable by crushing the ore dry with stampers and treating it directly by the Cassel process, without amalgamation. The method of treatment found to be so successful is as follows:—The ore in which the gold occurs in a very finely divided state is tipped into circular kilns 20 feet in diameter at the mouth and 37 feet deep, excavated in the soft rhyolitic rock of the rising ground behind the battery. It is mixed with firewood and dried by burning, and every third day is drawn off below, half a charge, or about 50 tons at a time, so as not to allow the kilns to cool down. The dry ore is then run into the battery house, crushed by rock breakers and dropped into challenge ore feeders which work automatically and obviate much manual labour. The stamps have a weight of 900 lbs. and crush 1½ ton in 24 hours, the average number of drops per minute being about 92. The mortar box, which is deep and has a large discharge, is fitted with long 40-mesh screens, through which the dust is splashed like the pulp in an ordinary wet battery. It falls into a long narrow trough running along the whole length of each line of mortar boxes, and is drawn to one end by means of an Archimedeal screw and discharged into a bin. From this, the pulverised ore is lifted by a bucket belt elevator and passed through a separator which returns the coarser portion to the stamps for further pulverising, the fine dust being conveyed to a long hopper running the entire length of the cyanide-house. The hopper, which is 110 feet long, has 20 doors for discharging sand into trucks. These are run over any part of the 24 cyanide vats by travelling rails, which can be moved laterally by hand-gearing. The sand is tipped in a small shower into each vat, so as to fill it up uniformly without packing—that is, without allowing the finer dust to accumulate in layers, which might interfere with the adequate circulation of the solvent through it. The vats are circular, 22½ to 24 feet in diameter and 4 feet in depth, of which 5 inches is occupied by the filter-bottom, a wooden grating covered with strong hessian cloth which acts as a filter. Each vat holds about 30 tons of ore, and four days are occupied in filling, treating, and sluicing it out. When the vats are filled to a depth of 2 feet, a solution of cyanide of 0.4 per cent. is introduced under the filter-cloth and forced up through the sand till it covers it to a depth of 2 inches. The solution remaining under the filter-cloth is then drawn off and filtration begins, the 2 inches on the surface taking about 24 hours to percolate through. After the whole of the strong solution has been drawn off, a weak stock solution is run on to the top of the ore to a depth of 6½ inches. The cock connecting with the vacuum cylinder is then opened, and in about 30 hours the second solution has passed through. Finally, about 10 inches of water is run on to the top, and after this has been drawn through the operation is completed, the sluice door is opened, and the sand sluiced out by two 2 inch hose pipes under a head of 150 feet of water. The precipitation boxes are 16 feet long, 2 feet deep, and 17 inches wide, and are divided into 12 compartments, of which the first and last are sand filters to clean the solution going in and to prevent any gold slimes being washed out. In dry crushing, such as this, there is a good deal of dust produced, but by having dust chambers and keeping the battery boxes and conveyors well covered in, this inconvenience has been minimised. The presence of so much light dry dust in the air is no doubt a good deal prejudicial to the health of the men exposed to it, and the men who wheel the ore from the bin to the vats must work with a cloth over their noses when opening the doors and filling the trucks. By the use of automatic Archimedeal conveyors, elevators, and other labour-saving appliances, however, very few operatives are required. When 60 heads of stamps were working, the whole labour required in the battery and cyanide house was only that of two men and a boy per shift. As the company possesses valuable water rights, steam power is not required for the greater part of the year. The power is supplied by six 6 feet Pelton wheels, which are ample for the present requirements, but spare steam power is provided in case of a diminution of the water supply in dry weather. The company are, however, contemplating the addition to their plant of a new battery of 100 heads. This it is proposed to erect at a lower level on the Ohinemuri River, the ore being brought down from the mine by a tramway. The immense body of ore in the Martha lode gives promise of a great future for this company. The main shaft was down to a depth of 239 feet at the date of last report, and the slopes were 20 to 30 feet wide and 700 feet in length, while large quantities of quartz were still being obtained from the great opencast on the top of the hill. Last year's work at Waihi resulted in the crushing of 24,210 tons of quartz, which produced 61,132 ounces of bullion, valued at £84,925 6s. 11d. Since then the production has continued to increase steadily, and for the month ending September 21, 1895, 3000 tons had been crushed, producing bullion to the value of £10,733. As this is a typical mine, it may be of further interest to give the details of the cost of mining and treating the ore, as supplied in the *Mines Report* for 1894-5, from which most of the present figures are derived:—

	Total.			Per ton.		
	£	s.	d.	£	s.	d.
Mining .. .. .	12,915	3	9	0	10	4.66
Transport of ore to kilns ..	346	8	1	0	0	3.34
Roasting ores .. .. .	3,924	12	9	0	8	1.46
Crushing through rock-breakers ..	786	15	0	0	0	7.59
Stamping .. .. .	2,664	2	4	0	2	1.71
Extraction of bullion: cyanide and zinc .. .. .	4,651	6	0	0	4	6.36
Royalty .. .. .	3,547	19	1	0	3	5.48
Steam-power, wages, &c. ..	2,130	18	0	0	1	8.56
Assaying and melting ..	524	16	2	0	0	5.06
Renewals to plant, &c. ..	1,295	5	9	0	1	0.50
Salaries of superintendent and officers, rents, gold duty, freight on bullion, &c. ..	5,811	1	0	0	4	3.18
Office expenses, London ..	2,266	10	8	0	1	9.88
Interest .. .. .	111	10	9	0	0	—
	40,976	18	4	0	13	9.78

The weight of quartz crushed and value of bullion won by the Waihi Company during the last five years is as follows:—

	Quartz crushed, Tons.	Value of bullion, £.
1890 .. .. .	—	20,980
1891 .. .. .	—	23,934
1892 .. .. .	18,236	44,883
1893 .. .. .	19,805	61,895
1894 .. .. .	24,864	82,820
1895 to November 16 ..	20,830	102,589
Total .. .. .	—	337,051

After the success of this company was assured, numerous others started up alongside of it, but as yet none of them have been successful in finding the Martha reef. There are, however, other reefs at Waihi, one of which, it may be mentioned, was originally worked without much success by this company before the Martha was acquired. Another is at present being mined by the Waihi Silverton Company, but as yet no returns have been reported, and all the works are of a preliminary nature. The Waihi Grand Junction Company are searching for the Martha lode, under the covering of rhyolite and ash already mentioned at the eastern end of the Martha hill, and if the reef be found to continue in that direction, as may be reasonably expected, the company have good prospects of ultimate success. Many other claims trade in the name of Waihi, but having really no right to do so have been pegged off in the vicinity within the last few months—*Waitehauri.* This gold field has long been known as a good reefing district, but up to this year it has received but little attention from outside. The township is situated in the steep glen of the Waitehauri stream, and all the surrounding country is mountainous, and thickly covered with bush and valuable kauri forests. The only mines of consequence are the Golden Cross and the Komata, situated in the bush about four miles north-west of the township. Both these mines are now the property of the Waitehauri Company. The ore is treated as at Waihi, but in addition to this, the excellent system has been adopted of passing the tailings from the cyanide vats over amalgamated plates, so as to catch any particles of coarse gold too large to be dissolved by the cyanide. The reefs are thick and of good quality, although very wet, but at the time of the writer's visit to part of the property the prospects were excellent. The property of the Komata Reefs Company, situated in the immediate vicinity of the Waitehauri Company's ground, contains several large and good reefs which, at the time of the writer's visit, were being energetically opened out by Captain W. H. Argall (the manager).—*Karangahake.* The mines in this section are situated on the sides of the steep gorge of the Waitaheta River, at its junction with the Ohinemuri. The district is now being developed by home capitalists, and the three principal mines belonging to the Crown—Woodstock and Talisman Companies respectively—are giving very satisfactory returns. Last year the total amount of quartz crushed was 5113 tons, and from this 15,448 ounces of gold was obtained, chiefly by cyanidation, a result which must be very pleasing to the shareholders. Of these mines, the Crown has the largest property, and was the means of first introducing the cyanide process to the district. Dry crushing with stamps and cyanidation are used, as at Waihi, and the steepness of the ground and abundance of water provide ample power and good sites for batteries.—*Production of the Hauraki Mines since the figures were first supplied to the Government:—*

The figures were also supplied to the Government.				
District.	Year Ending March 31.	Quartz and Mullock Crushed or Sold, Tons.	Yield of Gold Oz.	Average Yield of Gold per Ton. Oz. dwt. gr.
Coromandel	1881	720	4,960	6 18 0
"	1882	3,358	7,352	2 4 0
"	1883	2,907	7,577	2 12 0
"	1884	1,043	4,018	3 17 0
"	1885	456	3,201	7 0 0
"	1886	550	3,382	6 3 0
"	1887	305	4,170	13 13 0
"	1888	1,923	6,774	3 10 5
"	1889	2,149	8,090	3 15 7
"	1890	1,690	6,708	3 19 9
"	1891	5,650	9,838	1 14 19
"	1892	13,029	12,191	0 18 17
"	1893	15,163	12,954	0 17 2
"	1894	12,629	9,969	0 15 18
"	1895	15,451	22,632	1 9 18
	Total	77,023	123,816	1 12 4
Thames	1879	41,917	57,207	1 7 7
"	1880	33,017	59,576	1 16 2
"	1881	32,405	53,154	1 12 19
"	1882	30,698	45,803	1 9 20
"	1883	25,867	43,311	1 13 12
"	1884	34,228	54,878	1 12 2
"	1885	31,496	37,705	1 4 4
"	1886	35,998	61,540	1 14 4
"	1887	34,827	38,142	1 1 22
"	1888	32,819	35,949	1 1 11
"	1889	47,363	35,796	0 15 3
"	1890	60,753	33,817	0 11 14
"	1891	61,756	38,113	0 12 8
"	1892	86,150	45,735	0 10 15
"	1893	78,547	31,336	0 7 23
"	1894	62,444	34,637	0 11 2
"	1895	48,464	22,810	0 9 10
	Totals	778,739	729,509	0 18 18
Ohinemuri	1888	2,388	3,406	1 8 13
"	1889	3,795	3,679	0 19 9
"	1890	4,773	8,564	1 15 21
"	1891	9,902	12,914	1 6 2
"	1892	13,865	23,659	1 14 2
"	1893	22,771	43,405	1 18 3
"	1894	31,281	35,666	1 2 18
"	1895	51,058	110,628	2 3 8
	Totals	139,833	241,921	1 14 14
To Aroha	1884	4,262	4,629	1 1 17
"	1885	11,042	9,506	0 17 5
"	1886	6,552	4,489	0 13 17
"	1887	4,743	3,658	0 15 10
"	1888	7,166	2,918	0 8 3
"	1889	1,381	1,113	0 16 3
"	1890	4,894	20,416	4 3 10
"	1891	280	557	1 19 18
"	1892	2,722	979	0 7 5
"	1893	3,109	1,178	0 7 2
"	1894	2,270	833	0 7 8
"	1895	1,121	628	0 11 5
	Totals	49,602	50,904	1 0 13
Grand totals from North Island .....	1,045,207	1,125,514	2	

\* New Zealand Report relating to Minerals and Mining, 1895.



It is instructive to note from these statistics that the Ohinemuri district now returns not only the greatest quantity of gold, but also the highest average extraction of gold per ton of ore. This is due to the adoption, in all the leading mines, of the best scientific system of treatment, and when such processes are employed in the other gold fields there will, no doubt, be a marked improvement in their returns also. For the year ending March 31, 1895, the mines in the Hauraki district produced altogether 116,094 tons of ore, from which 156,698 ounces of bullion were obtained—97,471 ounces by the cyanide process, and the rest by amalgamation. The value of the bullion was £261,746, and the increased production this year will greatly swell the figures in the next report. The whole quantity of ore crushed in New Zealand during the year was 171,433 tons for 181,442 ounces, worth about £358,250. This was produced in the five districts of Hauraki, Marlborough, Nelson, West Coast, and Otago, and it is thus clear that the first of these gold fields now produces twice as much as all the others put together. In addition to the gold from reefing districts, a large quantity is produced from the alluvial fields in the Middle Island. Last year the total quantity entered for exportation was valued at £889,545, showing that as yet more than half of the New Zealand gold is derived from alluvial workings. The chief mines in the Middle Island are in the mountainous district of Reefton, on the West Coast, near Greymouth. This gold field compares favourably with the Hauraki district in some respects, and deserves a passing notice here. The Reefton mines are in a slate country, and the gold, which is very pure, is worth on the average about £4 1s. 6d. per ounce. It is a remarkable circumstance that, although some of these mines have been sunk to depths of over 1000 feet, or 200 feet below sea level, so little water has been met with as to render the use of pumping machinery unnecessary. Another advantage enjoyed at Reefton is an abundant and cheap coal supply from neighbouring collieries, while the mountains are covered with timber, and water power from the heights is easily available. Hitherto the Reefton district has been practically unknown in Great Britain, and the various mines have been worked with local capital in the old-fashioned wasteful style, to which reference has already been made. Assays have proved that fully half of the gold has been lost in the tailings during the 14 years the mines have been in operation. Notwithstanding this waste, however, the Reefton mines have produced altogether, from 653,000 tons of quartz, about 467,000 ounces of gold, valued at £1,824,000, from which dividends to the amount of £574,000 have been declared by the different companies. In conclusion, the contents of the preceding details may be summarised, in a few lines, by remarking that:—1. The Hauraki district, from its geological formation, which is similar to that of some other rich mining regions, promises, if properly developed, to yield for many years a steady output of gold, and become a source of great profit to capital and labour alike.—2. This district possesses exceptional advantages in having water-power and high ground for many of the mines, so that they can be cheaply worked level free by adits. Timber is also abundant, good machinery obtainable in the vicinity, coal comparatively cheap, and for the mines near the coast the means of transit are excellent.—3. As a rule, the ore is low grade and more or less patchy, and the value of the bullion is not very high, but the reefs are numerous, and sometimes of great size.—4. In these circumstances the mines cannot, on the whole, be profitably worked, except by companies with large properties, ample capital for development, extensive plant for the effective working and treatment of large quantities of ore, and capable management in both the financial and practical departments.—5. Hitherto the small companies, without adequate working capital, have proved quite incapable of carrying out these conditions, and the future welfare of this and other gold fields in New Zealand depends, to a great extent, on the influx of outside capital.—6. Such being the case, it is clearly wise on the part of the Government to continue their present policy and carry out the valuable suggestions of Mr. H. A. Gordon, the Inspecting Engineer of Mines.—7. Large mining areas, and the securest form of tenure, should be granted to those who provide the means of developing them, while labour conditions should be made as light as possible, and, in short, no opportunity should be neglected of fostering private enterprise in gold production, as it is clearly impracticable for any Government to undertake the risk of carrying on such a large industry as gold mining, with any probability of direct advantage to the public exchequer. Happily, the present Government seem fully alive to the best interests of the colony in this direction, and if its policy is steadily adhered to the benefit will very soon become apparent. The whole system has been tried and found wanting. The dawn of a brighter day is appearing, and it is hoped that the future will fulfil the promises that are now so clearly held forth.

### CENTRAL BOULDER GOLD MINES (W.A.), LIMITED.

Report of Mr. GRAY, M.E.

Lease No. 100 (24 E.).—This lease occupies one of the best positions in the Hannan's district, abutting on the Australia Block, and in the centre of a group of very valuable leases. My latest advices from the Australia Mine, which is one of the richest of the Associated Gold Mines, report splendid developments in the bottom. Two shafts have been sunk on your lease, from which rich ore has been taken. Lease No. 368 (949 E.).—This lease, which is known as Sandford's, is also admirably situated, as it joins on the north the Lake View east, one of the blocks of the Hannan's Proprietary Development Company. On the latter mine a shaft has been sunk 40 feet from the southern boundary of your lease, and is now in a very strong gold-bearing formation. As this is near the centre of the ground, the formation must traverse the entire length of lease 368. Another lode formation to the east of the first has been opened in several places on its strike, and has been proved to carry good values. In accepting the position of manager and engineer to your company, I recognise the high value of your property, and have every confidence that future developments and efficient equipment will bring it into a dividend-paying condition.—Geo. Gray, M.E., London, February 13th, 1896.

SILVER STATISTICS.—In a preliminary report which has just come to hand, the Director of the United States Mint estimates the total output of silver in America last year at 46,000,000 ounces, as compared with an actual production of 49,500,000 ounces in 1894, 60,000,000 ounces in 1893, and 65,500,000 ounces in 1892, when high-water mark was reached. The average London price last year was 29½d., whereas three years before it stood at 39 13-16d., and in 1890 at 47 11-16d. The world's production of the white metal in 1895 is put at 165,500,000 ounces, which is less than in 1894 and 1893, when the totals were 167,752,000 ounces and 166,100,000 ounces respectively. But on the other hand it is in excess of any earlier year, and but for the fires on the Broken Hill property last year there might have been no diminution at all. At any rate, this year, more than any other, operated to bring about the decrease in the Australian yield from 13,338,000 ounces in 1894 to 10,162,000 ounces in 1895.

### NEW ISSUES.

#### THE KATHLEEN CROWN (LIMITED).

This company has been formed with a capital of £75,000, in shares of 2s. 6d. each. The prospectus states:—The company has been formed to acquire and develop a freehold property situated in the Hauraki Mining District, Auckland, New Zealand, locally known as the Pukepoto Block, containing about 92 acres in the very centre of the Hauraki mining area, and surrounded by such well-known mines as the "Hauraki," "Kathleen," "Blagrove's Freehold," "Union Beach," and other celebrated gold mines. Twenty-six acres of the above adjoins "Blagrove's Freehold," and the remaining 66 acres adjoin both "Blagrove's Freehold" and "Kathleen." Captain Hodge, the manager of the Hauraki and Kathleen Mines, in his report on the property, dated May 6, 1895, states:—"Various veins and reefs have been found at different sections, from which small quantities of gold have been raised, and more or less gold is distributed throughout most of them everywhere where worked. . . . I have no hesitation in saying that if these favourable tufts are followed down, the veins and reefs will be found larger and better defined and comparatively rich in yield to the richest, either in Coromandel or the Thames gold fields in the early days." Captain W. H. Argall, the vendor, in his report, dated May 13, 1895, states:—"Regarding the portion of Blagrove's Freehold very good results were got from two of the reefs traversing the property. Two tons of ore yielded 4 ounces 18 dwts. of gold of a value of £3 per ounce. Four tons of ore treated from another reef gave 2 ounces 2 dwts." Mr. John Reilly, in his report, dated May 6, 1895, gives full particulars of the numerous reefs cut in the property, and the work done upon each, and concludes by saying:—"From the prospects I have myself seen taken from different places on your ground, I am convinced that you have a most valuable mining property in your hands, requiring but a limited amount of capital to develop it."

#### THE BIRD-IN-HAND GOLD MINING COMPANY (LIMITED).

The capital of this company is £80,000, and, according to the prospectus, it is formed to acquire and work the gold mining lease No. 1622, known as the Bird-in-Hand Gold Mine, consisting of 15 acres or thereabouts, on the Lone Hand and True Blue lines of reef. The position of the Bird-in-Hand Mine is exceptionally good. It is on the main line of lode in that prosperous mining district known as the 25-Mile, in Coolgardie gold field, and is immediately adjoining the celebrated Lone Hand Mine, lying between it and the Westralia, carrying reefs which are locally distinguished as the True Blue and Lone Hand reefs. Three distinct reefs are believed to traverse the Bird-in-Hand property from end to end, and developments at various points in adjoining leases show the reefs to be prolific in rich chutes. The rich specimen stone obtained in January from the Lone Hand Mine was taken from a shaft only 30 yards from the Bird-in-Hand boundary, and from a reef running directly to that boundary. The property has been examined on behalf of the vendor by C. Chewings, Esq., Ph. D., F.G.S., F.R.G.S., and by W. H. C. Lovely, Esq., M.A.I.M.E., M.F.I.M.E. (England). Reports have also been received from Mr. R. N. Wells, M.E., M.A.S.S., who is in charge of the mine. Mr. S. Göczel, Government Geologist and Inspector of Mines in Western Australia, in his report to the Government, referred to the Lone Hand in the following words:—"Shaft in the True Blue 60 feet deep; lode 5 to 6 feet wide; stone carrying fine gold. Shaft in Lone Hand. . . . A rich shoot dipping south has been struck. The lodes in these leases seem to me to come together, and to form one large lode at a depth." The purchase price to be paid for the property is fixed at £10,000 in cash, and £30,000 in cash or fully-paid shares. Since the prospectus was issued, Mr. Lovely has reported to the directors on follows:—"Since my report of March 5, 1895, the work carried out has greatly increased the value of the mine. On the Bird-in-Hand near the southern boundary both the Lone Hand and True Blue reefs have been cut, and are now being followed into settled country, where they may be expected to become more solid, and also increase in size and value."

#### THE ANGLO-FRENCH GOLD FIELDS OF AUSTRALASIA (LIMITED).

This company has been formed for the purpose of conducting the business of a financial, exploring, and mining corporation in Australasia and elsewhere. The company acquires the following properties, details of which are as follows:—(a) Three Government leases of an extensive landed estate situated in the Northern Territory of South Australia, containing an area of about 3942 square miles—that is, over 2,500,000 acres. (b) An exclusive license for a limited period to prospect for minerals over a belt of about 640 square miles (part of the above), which is believed to be highly auriferous. The company also acquires the benefit of agreements for the purchase of the following gold mining properties, which have been carefully selected, on what the directors consider very favourable terms:—(a) A mining property in New Zealand, consisting of about 186 acres and equipped with a 33-stamp mill, cyanide plant, &c., which has been favourably reported on by several experts of good standing. (Described in an agreement dated October 25, 1895, made between the May Queen Gold Mining Company of the first part, George Robson of the second part, and Oscar Heindorf of the third part.) (b) A mining property of about 156 acres in extent, also in New Zealand, which is equipped with a 4-stamp mill, and has been favourably reported on. (Described in an agreement dated January 14, 1896, and made between Wm. John Farrell of the one part, and Oakes' Syndicate, Limited, of the other part.) (c) A mining property of 24 acres in the White Feather district of Western Australia, also favourably reported upon. (Described in an agreement dated February 22, 1896, and made between Arthur Granville Adams of the one part, and Oakes' Syndicate (Limited) of the other part.) It is intended to form subsidiary companies to acquire and develop the properties now and hereafter to be secured, and as the company will retain large interests in these companies, handsome profits should very shortly be made. The directors have already received favourable offers for the acquisition and development of the northern territory for formation of subsidiary companies. Shareholders of the company will, as far as possible, be given the first right of applying for shares in the subsidiary companies which may be brought out by this company, a privilege which, as is well known, has proved of great value in parent companies of this character. Messrs. F. E. Nash and Company (Limited), who are the vendors and promoters, have fixed the purchase price at £300,000, which includes a profit on re-sale. This sum is payable as to £25,000 in cash and £275,000 in shares, leaving £200,000 to provide for working capital.

At a meeting of the directors of the ISLE OF MAN MINING COMPANY (LIMITED), held on Tuesday, an interim dividend of 3s. on the ordinary shares was declared, and half a year's interest on preference shares at the rate of 7½ per cent. per annum was also declared, payable on March 2.

### NOTES ON GOLD MILLING IN CALIFORNIA.

By ED. B. PRESTON, M.E.

Bulletin No. 6, issued by the California State Mining Bureau.

THE system of reduction of gold-bearing ores with stamps, as at present carried out in California, is the result of progressive improvement during the past 44 years. The first successful mill in this State was built in the winter of 1850-51, and used steam for power.

Starting with the ancient Mexican arrastra, crushing, with the help of a mule and one man, a few hundred pounds of ore at a charge, we have progressed to the present aggregation of mechanical appliances, as seen in the modern stamp mill, requiring great motive power, and disposing of hundreds of tons of ore in the course of a day. This progression is largely the result of accumulated practical experience on the part of the designers and builders of mills, as well as of the millmen in the handling of the various gold ores. Of late years scientific investigations have greatly aided in improving both the process and the mechanism.

That the results accomplished have been of economic value is evident from the fact that while formerly a yield of 30 per cent. to 40 per cent. of the total gold in the ore was the average obtained, the best mills of to-day are able to more than double these figures. That our methods may still be improved upon, and the margin of wasted gold be further narrowed down, is the point for which all intelligent millmen are striving. While the stamp mill itself had been used for crushing ores long before the discovery of gold in California, since that time it has been greatly improved in detail, and its capacity and efficiency increased, hence what is now known as the "California gold mill" is a very different affair from the clumsy mills first used for crushing quartz in this State. The California gold milling processes and the California millmen are, as a result, finding due recognition outside of their own immediate field of operation, as is evidenced by the increasing outside and foreign demand for our men and milling machinery. The development of the milling process, keeping pace with the improvement of the machinery required for ore reduction, has had the beneficial effect of greatly lessening the working expenses, permitting ores of a low grade to be worked at a profit. California has a great abundance of this class of ores, comparatively untouched, and these must be mainly relied on in the future as the sources of the precious metal. Already, under extremely favourable conditions, ores are being mined and milled in California at a cost of 50 cents per ton, as at the Spanish Mine, in Nevada County, where, with Huntington roller mills, ores yielding 85 cents per ton have been worked at a profit.

#### Mill Site.

When assured of a constant and sufficient supply of ore, it is of the greatest importance that the site for the mill should be chosen with due regard for economic treatment. This necessitates the observance of the following points: The means of transportation of the ore from the mine to the mill, which should be done automatically, or at least with as little handling as possible, conveying the ore at once to the highest point in the mill, so that it will descend by gravity from one to the other in all the different consecutive operations. Another important feature is to provide sufficient space for capacious ore bins, which are necessary to prevent a stoppage of the mill through a lack of ore, caused through unavoidable delays in the mine or along the roads. The accessibility of the mill site as regards fuel, water, or electrical transmission, according to the motive power to be used, and their continuity and costs at all seasons of the year, must likewise be considered. The possibility of placing the levels for the different floors on solid rock foundations should be investigated, as the stability of the machinery is most essential for successful milling.

The ideal site would be to have the mill in close proximity to, but below the level of, the collar of the shaft or the mouth of the tunnel, on sloping ground, where the ore can be delivered directly from the mine to a "grizzly" on the upper floors of the mill, to be passed later, without rehandling, through the crushers, ore-bins, self-feeders, mortars, &c., while leaving sufficient space for a waste dump. For a mill arranged in this manner, including concentrators and canvas platforms, 40 feet of fall should be available. If chlorination works are also to be used, a greater fall is desirable.

#### Mill Construction.

After deciding on a suitable site, the surface should be removed down to the bedrock and levelled off for the different floors. Solidity and accessibility are the chief points to be observed in placing the different parts of the mills. Where required, heavy stone walls should be erected as buttresses. The foundation for the mortars and the proper erection of the battery frames are points requiring particular attention. For the mortar block, a trench is prepared of suitable depth, preferably in solid bedrock, proportioned to the height of the block, and wide enough to leave about 2 feet of free space around it, which is later filled in with concrete or tailings from the battery. These mortar blocks vary from 8 feet to 15 feet in length, and are dressed at the upper end to the size of the bed plate of the mortar. In California they can be obtained frequently from a solid cut of a pine tree, or else consist of two or three sawed blocks fitted and bolted together; but where clear timber of the requisite size is difficult to obtain, the block can be constructed of 2 inch plank, as is done in the Black Hills in Dakota. There the bottom of the trench for the block is levelled, and some sand tamped down, on which two layers of 2 inch plank are placed crosswise and spiked to each other, and made perfectly horizontal. On this foundation a mortar block is constructed of 2 inch planks, from 11 to 14 feet long, according to the depth of the trench. The planks, which should be of clear lumber, and varying breadths (in order to break joints), stand on end, with their width parallel to the long side of the mortar. They are spiked together and fastened above and below with binders bolted to each other by transverse rods; the upper binders (8 inches by 12 inches) being even with the top of the mortar blocks; the lower binders (12 inches by 12 inches) are 3 feet lower.

The top of the mortar block should be planed perfectly true and levelled, and where several blocks are placed in line all the blocks should be sawed off to one height. Before setting the mortar upon the block a sheet of rubber cloth, ½ inch thick, should be placed between, or when this is not obtainable, two or three folds of mill blanket, well tarred, will answer the purpose.

The mudsills should be of square timber, free from sap, bedded in concrete on the bedrock and secured by anchor bolts to the foundation; they also should be bolted to the linesills.

The uprights of the battery frames are supported in various styles, with diagonal braces and hog chains at front or back, or with so-called knee frames. In the former style the brace is placed on the same side as the countershaft, which rests low down on the battery-mills. This style is well suited for small mills.

\* "Gold Milling in the Black Hills," by H. O. Hoffman. "Transactions of the American Institute of Mining Engineers," Vol. 17, 1894-95.



Bureau.

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using stamps not to exceed 750 lbs., but for large mills using heavy stamps the knee frames are the more suitable, with the counter shaft on a level with the cam shaft. What is known as the reversed knee frame forms a strong, compact construction, but requires the counter shaft to rest on the battery sills behind the frame.

The battery pots are made 24 inches deep, and from 12 inches to 20 inches wide; the centre one of a 10 stamp mill being made the heaviest, as having to bear the greatest strain. They are let into the sills and secured to the line timbers by bolts. Besides the braces, the posts are given stability above the mortar by the guide timbers, which extend from end to end in one piece, and are let into the posts to which they are bolted. The lower one is placed about 6 inches above the upper edge of the mortar, and the centre of the upper one is about 3 feet from the top of the post. The seat for the cam shaft bearings is cut in the upper part of the posts.

After lowering the mortar on the block, with the planed bottom resting evenly on the sheet of rubber cloth or folds of tarred blanket, it is fastened perfectly tight by eight bolts, four on each long side, passing through the flange, which is cast on the bottom of the mortar. This flange is 4 inches wide and about 2½ inches thick. The feed floor should be high enough so that those bolts can be conveniently reached, to permit their tightening when required. The journals for the cam shaft, which are placed in the recesses cut out of the battery posts for their reception, are lined up and "babbitted" prior to receiving the cam shaft, and just far enough from the cams to clear them when dropping. The cam shaft is made of wrought iron or soft steel from 4½ inches to 5 inches in diameter, turned true and should have key-seats for securing the cams. There should be two key-seats, and placed one-third of the shaft circumference apart. At one end of the cam-shaft the cast-iron "hub" of the belt pulley (with flanges) is keyed on. This pulley is built of wood, and turned true on the shaft. Where there is more than one battery to the mill, it is best to have a cam shaft for each 10 stamps, as this permits of repairs, such as changing cams, &c., without stopping more than 10 stamps.

The guides which direct the drop of the stems are in two sets, upper and lower—the former above the tappets, and the latter below the cams—and are bolted to the guide-girts by eight bolts. They are best made of hard wood, but pine answers sufficiently well—though the former lasts five times as long as pine. The old style guide consists of two pieces of 4 inch plank 14 inches wide, planed on all sides, and of sufficient length to fit easily between the battery posts, with equi-distant semi-circular grooves, fitting together, for the passage of the stems. A quick and exact way to make these grooves is to clamp the two planed planks tightly together as they are to be placed on the frame, set them on edge, and after marking off the centres for the five stems, bore out the circle (using the joint line for the point of centre) with a long-handled auger, having an adjustable bit. These are kept in many mills for this special purpose.

Before bolting the guides in place, ½ inch pieces are placed between the two halves, and adjoining each stem, which are planed down later as the guides wear, leaving but little play for the stem. After boring out the grooves for the stems, and before putting the guides in place, they should be lubricated. A convenient and economical plan is to cut some semi-circular pieces of thin sheet iron of a somewhat larger diameter than the grooves and drive them into the wood at both ends of the channel; then lay the halves level, groove side up, and fill the latter with linseed oil, letting them remain until the wood has taken up all it will absorb, when the remainder is returned to the can, and the sheet-iron pieces removed.

If, in a pine guide, those portions occupied by the grooves are cut out square, and hard wood brushings fitted in before boring out, the stem will work parallel to the wood fibre, which reduces the friction and lengthens the life of the guides; while only the hard-wood brushings would need replacing, making the cost of the guides less.

The great drawback to these guides is that when a stem has to be removed, the entire battery has to stop; hence the adoption of separate guides for each stem, being either all iron or wooden bushing in iron frames, which are held in place by wedges and the lips of the iron frames.

For the support of the stamp-stems when suspended, wooden latch-fingers, or jacks, are supplied. A jack-shaft 3 inches in diameter, rests in bearings attached to the inner sides of the battery posts; on this cup-shaped sockets ride, in which the wooden fingers are attached, shod at the upper end with an iron plate ½ inch thick, and provided with an iron or leather "hand-hold" near the top.

For the greater convenience of quickly removing and replacing stems, or cam-shafts, large mills are supplied with overhead travellers, or "crabs," in line with the batteries, in connection with a chain block and tackle running on plates secured to the roof, shod with iron tracking. To easily reach the cams, tappets, &c., a platform is placed just below the cam shaft.

The feed floor consists of a double board floor of 1 inch lumber, with broken joints, supported on joists 18 inches apart, and about 2 feet below the feed opening in the mortar.

#### Mill Details.

The Grizzly is a coarse screen, consisting of a number of parallel bars attached to a frame, set on an angle from 45° to 55°, over the ore-bin. These bars may be of round, rectangular, or V-shaped (apex down) iron, or of wood, faced with iron, and resting on several iron cross-rods, held apart with iron washers; the distance between the bars should be equal to the opening of the rock-crusher jaws are set to—from 2 inches to 3 inches. There are no fixed dimensions of length or breadth, as these depend in a measure on local conditions; but they are usually from 3 feet to 6 feet wide, and long enough (12 feet to 15 feet) to give the fine material time to drop through the spaces before reaching the crusher floor.

Where substantial steel T rails are used for tracking in the mine, they can be made to serve for grizzly bars when no longer of use in the mine, by turning them with the base up.

The grizzly should be placed at the highest point of the mill over the ore-bin, where the car or wagon can enter and dump. Its chief object is to separate at once the finely divided ore from the coarser; a secondary purpose is served in affording an opportunity to recover drills, gads, or hammers that may have come from the mine, in the ore, before they reach the rock-breaker or mortar. Its lower end rests on a platform in front of the rock-crusher, or better, in a chute with an adjustable outlet placed above the mouth of the rock-crusher so as to permit of its being fed automatically.

Where the ore is delivered from the mine carries less than 5 per cent. of fine stuff, the grizzly should be dispensed with, especially where, in constructing the mill, full must be economical. Some object to the use of the grizzly, as tending to feed the hard rock by itself, and say the output of those batteries is below the others.

Rock Breakers or Crushers are placed on a platform below the grizzly and above the ore-bin in such a manner that the crushed rock mingles with the fine stuff passing between the bars of the

grizzly. The rock-breaker must be of sufficient weight to remain firm in its place, and strong enough to resist heavy strains; the dies should be easy to exchange and adjust, and all parts requiring to be oiled should be arranged to prevent oil coming in contact with the quartz. In large mills it is best to have one crusher to supply every 20 stamps, and on account of their intermittent work, they should have driving power separate from that of the stamps.

Rock-breakers are adjusted to crush the rock smaller than the throat of the mortar (therefore, less than 3 inches), but as the work of the rock-breaker is cheaper than that of the stamp, it would pay, with very hard rock, to do more of the crushing with this machine, even to the extent of placing two crushers, one beneath the other, and bringing the quartz greatly reduced to the stamps.

There are two general types of rock-crushers. The older pattern carries a flat, fixed jaw, working with one having a reciprocating motion, and using flat or corrugated dies that are reversible. The Blake is representative of this pattern. The other pattern has an outer, circular, fixed jaw, within which a corrugated jaw circles, of which the Gates is representative. This latter machine permits of larger blocks being fed. It is an excellent machine for heavy work, and where the rock is not wet or clayey; but it requires greater horse-power, for where a Blake, 10 inches by 8 inches, crushing 3 tons per hour, requires 9 horse power, the Gates, with a diameter of 37½ inches, crushing 3½ tons per hour, requires 16 horse power. The Gates consists of a nearly vertical shaft of forged steel, rotated from below by a bevelled wheel set ½ inch out of centre, on the top of which a chilled-iron conical head is attached, with the base downward, rotating within chilled-iron concaves, with an outward slope, set in the cylindrical body of the machine. Between these two faces the ore is crushed, their distance apart below being gauged by set-screws. The shaft, by being made to revolve around an eccentric at the bottom, has a constant crushing power without doing any grinding. A set of concaves last two years, and can be replaced; the centre shaft with the chilled-iron head has been known to crush 120,000 tons of an average hard quartz before wearing out.

Ore bins should always be as spacious as the surroundings will permit, but never of less capacity than will carry a 24 hours' supply for the mill, say about 65 cubic feet to the stamp. They are usually constructed with a sloping bottom, to facilitate discharging, but where very large bins can be erected, this feature is not so essential. These bottoms must be solidly braced, and ought to be covered with iron plates over those portions where the ore has to be dropped. The front of the bin is parallel with the mortars, and supplied with gates for each battery above the level of the hopper of the self-feeders. These gates should be regulated by a pinion and rack, and set for a regular discharge and delivery, through chutes, in the self-feeders. The chutes should be lined with heavy sheet iron.

(To be continued.)

## GOLD MINING IN THE SOUTHERN STATES.

By H. B. C. NITZE.

DURING the early years of the sixteenth century the published accounts of various Spanish explorers of the New World reported the existence of gold in the south-eastern part of what is now the United States; and many traditions are still extant of their discoveries—for instance, the Brewer Mine, in South Carolina, where De Soto is supposed to have mined for gold.

The aboriginal inhabitants of our Continent are also credited with having sought after and discovered the yellow metal, and the sites of their ancient workings are still pointed out in the Nacoochee valley of Georgia and elsewhere.

It is, however, impossible to name the precise date of the first discovery of gold in the United States. In all probability some mining was done previous to the Revolutionary war, but no authentic references to this can be obtained. In 1782 Thomas Jefferson, in his "Notes on Virginia," mentions the discovery of a piece of ore, containing gold, on the Rappahannock River. In 1799 a nugget, weighing 17 lbs, was accidentally discovered on the plantation of Mr. John Reed, in Cabarrus County, North Carolina. The story is current that Mr. Reed, in ignorance of the true nature of the metal, used it as a door prop until 1802, when he was told that it was gold by a jeweller in Fayetteville, to whom he sold it for \$34. In 1803 a 28 lb. nugget was found in the same locality—the largest nugget on record in the Eastern United States. Regular mining work was commenced shortly afterwards. Other discoveries followed; and the date 1804 may be fairly accepted as that of the first real excitement in the gold fields of the Southern United States.

The earliest record of a domestic gold deposit in the United States Mint was in 1804, and from that year until 1828 (inclusive) North Carolina furnished all the gold produced in this country, amounting to \$110,000. During 1829 \$2500 was received from Virginia, and \$3500 from South Carolina. The first returns from Georgia appear in 1830, from Tennessee in 1831, from Alabama in 1840, and from Maryland in 1868.

Below are given several statistical tables, which explain themselves. These figures include, besides the United States Mint and Assay Office receipts, all such bullion as went abroad, or was used directly by local jewellers or otherwise, and represents as nearly as possible the total product of the Southern gold mines.

Table I.—Gold and Silver Produced in the Southern States and Deposited at the United States Mint and Assay Offices from 1793 to 1894 Inclusive.

Year.	Amount.	Year.	Amount.	Year.	Amount.
1793-1823 ...	47,000 ...	1847 ...	1,018,079 ...	1871 ...	138,791
1824 ...	5,000 ...	1848 ...	860,692 ...	1872 ...	164,461
1825 ...	17,000 ...	1849 ...	891,968 ...	1873 ...	158,952
1826 ...	20,000 ...	1850 ...	668,605 ...	1874 ...	141,647
1827 ...	21,000 ...	1851 ...	500,539 ...	1875 ...	150,612
1828 ...	46,000 ...	1852 ...	711,449 ...	1876 ...	138,256
1829 ...	140,000 ...	1853 ...	486,184 ...	1877 ...	159,009
1830 ...	466,000 ...	1854 ...	323,489 ...	1878 ...	162,925
1831 ...	519,000 ...	1855 ...	362,349 ...	1879 ...	186,123
1832 ...	678,000 ...	1856 ...	325,820 ...	1880 ...	203,770
1833 ...	868,000 ...	1857 ...	141,810 ...	1881 ...	197,084
1834 ...	898,000 ...	1858 ...	349,323 ...	1882 ...	229,459
1835 ...	686,300 ...	1859 ...	379,677 ...	1883 ...	272,046
1836 ...	667,000 ...	1860 ...	231,398 ...	1884 ...	255,259
1837 ...	282,000 ...	1861 ...	141,778 ...	1885 ...	239,963
1838 ...	358,750 ...	1862 ...	6,298 ...	1886 ...	272,414
1839 ...	429,648 ...	1863 ...	1,624 ...	1887 ...	390,531
1840 ...	427,311 ...	1864 ...	6,093 ...	1888 ...	234,947
1841 ...	544,661 ...	1865 ...	83,345 ...	1889 ...	224,323
1842 ...	723,761 ...	1866 ...	202,000 ...	1890 ...	269,997
1843 ...	1,050,100 ...	1867 ...	106,903 ...	1891 ...	264,707
1844 ...	928,095 ...	1868 ...	155,660 ...	1892 ...	262,023
1845 ...	986,849 ...	1869 ...	191,738 ...	1893 ...	261,904
1846 ...	992,792 ...	1870 ...	168,057 ...	1894 ...	273,072
Total .....					\$25,289,420

\* From the Engineering Magazine.

† The silver production is so small that for practical purposes it may be overlooked; hence the figures in this table and that following may be applied to gold alone.

‡ From the reports of the director of the United States Mint.

Table II.—Estimate of the Production of Gold and Silver in the Southern States from 1799 to 1879 and Annually since.\*

Year.	Yr.	N. C.	S. C.	Ga.	Ala.	Tenn.	Total.
1799-1879	\$	19,639,600	2,587,900	14,180,500	365,300	158,300	40,042,800
1880	\$	39,000	15,000	120,000	1,000	1,500	244,500
1881	\$	115,000	40,000	125,000	1,000	1,750	293,250
1882	\$	215,000	25,000	250,000	3,500	250	509,750
1883	\$	170,000	57,000	200,000	6,000	750	441,250
1884	\$	160,500	57,500	187,000	5,000	300	363,300
1885	\$	155,000	43,000	186,000	6,000	300	345,800
1886	\$	128,000	38,000	163,500	4,000	600	375,000
1887	\$	130,500	60,500	110,500	2,500	600	409,100
1888	\$	135,500	39,200	104,500	5,600	1,100	300,900
1889	\$	150,174	47,085	108,069	2,639	1,700	316,330
1890	\$	126,397	100,294	101,318	2,170	1,001	354,338
1891	\$	100,294	130,149	80,692	2,245	519	332,976
1892	\$	90,196	123,881	95,251	2,419	1,066	318,756
1893	\$	72,505	127,991	100,376	6,362	1,066	311,787
1894	\$	62,927	98,763	99,095	4,092	329	263,827
Total ...	\$	21,703,276	3,581,263	16,101,730	419,827	166,105	45,227,712

Table I. shows the comparative fluctuations in the production for various years. The early mining, as in all gold regions of the world, was confined to the stream gravel deposits and other shallow placers. The marked decrease in the production during the few years following 1834 may be explained by the partial exhaustion of these more accessible virgin placers. It was at this period that attention began to be paid to vein mining, and from 1837 to 1849 there was an enormous increase in the production, with few retrogressions; in the forties the south reached its maximum annual output, approximating \$1,000,000. In the early fifties the California excitement distracted interest from the southern fields, and an era of decreased production set in, which culminated in practical cessation during the Civil War. Since then there have been periods of revival and depression, due to many minor causes; of late the annual production has been something over \$250,000.

In order to institute a comparison between the present gold production of the Southern States and that of the principal gold fields of the world, the following statistical table† is presented, showing the production in the south for 1894 to have been \$263,827.

It is thus evident that the south is a very small factor in the gold production of the world, and that, in comparison with the other gold fields of the world, it stands last.

California ...	\$13,570,397	Australasia ...	\$41,760,800
Colorado ...	9,491,514	Africa ...	40,721,000
Montana ...	8,651,410	Russia ...	24,133,400
South Dakota ...	3,299,100	China ...	8,568,800
Idaho ...	2,081,281	Mexico ...	4,600,000
Arizona ...	1,784,475	India ...	3,986,900
Oregon ...	1,422,056	U.S. of Colombia ...	2,892,800
Nevada ...	1,137,819	Brazil ...	2,219,500
Alaska ...	1,118,550	British Guiana ...	2,310,100
Utah ...	868,031	French Guiana ...	1,829,200
New Mexico ...	567,751	Austria-Hungary ...	1,684,800
Washington ...	195,100	Germany ...	1,498,900
United States, total	39,500,000	Canada ...	1,042,100
Total of the world ...			\$179,965,600

The gold ores of the Southern Appalachian States occur in the Piedmont and Mountain regions throughout the great belt of crystalline and metamorphic rocks stretching in a south-westerly direction from Maryland to Alabama, 600 to 700 miles in length, and 50 to 150 miles in width. This broad area may be sub-divided into several minor gold-bearing belts: (1) the Virginian belt, (2) the eastern Carolina belt, (3) the Carolina slate belt, (4) the Carolina igneous belt, (5) the King's Mountain belt, (6) the South Mountain belt, (7) the Georgia belt (8) the Alabama belt.

The Virginian belt extends from Montgomery County, Md., in a south-westerly direction to the North Carolina line. Its width is from 9 to 20 miles, and the principal mining sections lie in Fannquier, Calpepper, Stafford, Orange, Spottsylvania, Loudon, Fluvanna, Goochland, and Buckingham Counties. The rocks are, gneisses and schists, striking north 20° to 30° east, with easterly dips.

The eastern Carolina belt comprises an area of about 300 square miles in Halifax, Warren, Nash, and Franklin Counties. The rocks are dioritic eruptives and chloritic schists, striking north 50° to 60° east, and dipping south-east.

\* From the production report of the Director of the Mint for 1892, and annual reports since.

† From the report of the director of the United States Mint for 1894.

(To be continued.)

#### NEW ZEALAND CROWN MINES COMPANY (LIMITED).

An extraordinary general meeting of the shareholders was held in the office of the company, 139, St. Vincent-street, on Wednesday, Mr. Dunnachie presiding.—The Chairman explained that the meeting had been called for the purpose of confirming the resolutions which were passed at the extraordinary general meeting held on 10th inst., to alter the Articles of Association with a view to the establishment of a colonial register, in accordance with an Act passed by the New Zealand Legislature, and also with regard to lien on the company's shares, in accordance with the requirements of the Stock Exchange.—The secretary read the formal resolutions carrying these proposals into effect.—On the motion of the Chairman, the resolutions were unanimously adopted.

The offices of the HANNAN'S REWARD GOLD MINING COMPANY (LIMITED) have been removed to 118, Bishopsgate-street, Within E.C.



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\* Advertisements are inserted in this column at the rate of  
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S. G. BRUFF, Secretary.

54, Old Broad Street,  
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**THE HAURAKI GOLD MINING COMPANY**  
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NOTICE IS HEREBY GIVEN, that the SECOND ORDINARY  
GENERAL MEETING of the HAURAKI GOLD MINING  
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Broad Street, in the City of London, on THURSDAY, the 5th day  
of March, 1896, at One o'clock in the afternoon.

Holders of Share Warrants desirous of attending the meeting,  
must deposit, at the office of the company, three clear days before  
the day fixed for the meeting, the Share Warrants in respect of  
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By Order,  
W. J. LAVINGTON, Secretary.  
97, Dashwood House,  
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### THE RUSH FOR GOLD.

A SMALL SYNDICATE (£1 shares) is forming to fit out an ex-  
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literary contributions should be addressed to "THE EDITOR." All matter  
intended for insertion must be written on one side of the paper only. The  
return of rejected manuscripts cannot be guaranteed. The Editor invites  
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\* ADVERTISEMENTS (which should in all cases be sent direct to  
THE BUSINESS MANAGER) can now be received for the forthcoming issue  
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LONDON: FEBRUARY 29, 1896.

## THE FATE OF SOUTH AFRICA.

AT last we know where we are. Our doubts have been  
entirely dispelled, and we may now gaze into the future,  
not with absolute hopefulness, it seems, but with a clear  
and certain view of the facts as they really exist. How anx-  
iously and feverishly during recent weeks have we sought to  
learn of the fate of South Africa! But now, happily, that  
period is passed, and we are able, at last, to have a genuine  
sigh of relief. Last week we made an endeavour to get a true  
conception of the future of the mining industry in this part of  
the world, and we showed pretty conclusively the difficulties  
which stood in the way of it. But now those difficulties have  
vanished, as if by magic, and we have sure knowledge now, not  
only of the fate of the mining industry, but of South Africa  
itself, which, of course, would carry the former along with it.  
We are indebted for this enlightenment to Dr. RUTHERFORD  
HARRIS, secretary to the British South Africa Company, and  
Member of the Cape Legislative Assembly. This gentleman  
contributes an article to the current number of the *New Review*,  
entitled, "The Fate of South Africa," and naturally, for more

than one reason, it has attracted a great deal of interest. We  
propose briefly to comment upon this article, and to make  
sure in our own minds whether we gain any real enlightenment  
from his efforts; whether his predictions are the inevitable  
outcome of the position of affairs; and whether his ominous  
warnings are based upon solid, substantial facts, and upon the  
true history of human experience and progress.

As the text of his article, he takes the following utterance,  
which he quotes from the *Daily News* of the 9th inst.:—"The  
key to the situation in South Africa is the redress of the griev-  
ances of the Uitlanders in the Transvaal." It is clear, therefore,  
that to make his case good he must explain what the situation is;  
what is the nature of the grievances; and how the redress of  
them can give the key to the complicated set of circumstances  
now existing. In other, and briefer words, he must show us  
that if their grievances are redressed everything will in the  
future proceed calmly and quietly, and that we need have no  
fear of disturbances, or crises, or anything of that nature. The  
puzzle, as he presents it, is that Africa south of the Zambesi  
consists of a congeries of States "in juxtaposition presenting  
so many combinations and permutations of racial and political  
characteristics," the key to which must be found in the "redress  
of the grievances of the Uitlanders of the Transvaal." Truly,  
this seems an extraordinary proposition at first sight for it is  
difficult to see where the puzzle is, and what in the world it  
has to do with the grievances of the Uitlanders. How, verily,  
we be patient, and read on. He goes on to say, "it may  
seem extravagant to claim that the ultimate fate of all  
these States must be decided by the redress of the grievances  
in one of the smallest among them, but the ultimate fate of  
our American colonies was so decided something more than a  
century ago, and the question for British statesmen is whether  
Africa, south of the Zambesi, shall federate into 'a United  
States,' hostile to Great Britain; into a 'Dominion of Camda,'  
but with Germany for its Sovereign Power; or into a 'Dominion  
of Canada,' still loyal to the British Throne." In other words,  
if we do not redress the grievances of the Uitlanders, Germany  
will step in and conquer, and occupy the whole of the country  
south of the Zambesi. This certainly is a puzzle, but not the  
kind of which Dr. HARRIS has a conception, and we at once  
state our inability to grasp and solve it. Our clear duty is,  
therefore, to redress these grievances, and then to assist the  
British in South Africa to take possession of the  
whole of the country south of the Zambesi, and  
thus get the start of Germany. We are very sorry  
that Dr. HARRIS has written this article, for it goes  
far to confirm our worst fears, and will not hold us up as a  
nation in the esteem and confidence of the world. We had our  
suspicions, though we have all along admitted the grievances,  
that the latter were made the pretexts for motives and aims  
not of a purely noble and unselfish character, and Dr. HARRIS  
does not disillusion us. If the grievances of the Uitlanders are  
not redressed they will rise up and overthrow the Republic;  
declare war against Germany; and unbeaten possess them-  
selves of the whole of the country, and form themselves into an  
independent Republic, with a flag and laws of their very  
own. Truly, a most ambitious aim, but, fortunately,  
far from a realisable one. The writer then goes on to  
remind us of facts of which we were already in pos-  
session—namely, of the material benefits which the Uit-  
landers have conferred upon the Transvaal. No one is  
more conscious of these than ourselves, and no one has en-  
deavoured more forcibly to impress them upon President  
KRUGER. But there is one fact which we have never ignored,  
but which Dr. HARRIS seems to keep out of count altogether.  
The Uitlanders are not philanthropists. Their first and fore-  
most aim is to benefit themselves, and if they thereby benefit  
other people it is because they are compelled to do so by circum-  
stances beyond their control. If they chose to seek their for-  
tunes in a foreign land they must abide by it, and be subject to  
the laws of that land. We should greatly resent Germans  
coming here and doing what they like, and we should be the  
first to complain of the injustice of it. We must bear all these  
things in mind if we desire to look at the question from a broad  
and narrow point of view. The grievances—the burdensome  
grievances—of the Uitlanders we admit, and we certainly  
think they ought to be redressed. We only hold a fixed  
opinion as to the methods to be employed. If the  
President does not choose to redress them he is not bound to  
do so except from a sense of justice and the law of self-pre-  
servation. He must consider whether or not the continued  
existence of them will endanger the peace and stability of his  
Republic. If we are suspicious of him, it must be borne in  
mind that he is suspicious of us, and all it is necessary for him  
to be assured of is whether he is strong enough to resist succes-  
sfully hostile attacks. We are afraid that the analogy of the  
American colonies will not hold good, for here we have an  
independent Republic to deal with, backed up by more than one  
powerful European power. Besides, we have learnt a great  
lesson since then, and are better prepared to meet emergencies.  
It must also be borne in mind that the late conduct of the  
Uitlanders did not display courage of a high order, nor even  
maddened desperation, whilst not a few fled to England  
and to more peaceful quarters of the globe. If these  
are the men ready to fight the world, all we can  
say is that they must greatly and speedily improve. Thus we  
are doubtful that the fate of South Africa, as foreshadowed by  
Dr. HARRIS, is at all possible if these are the individuals who  
will undertake so colossal a task.

No; all that can be done we are striving to do, and for this  
the Uitlanders ought to be grateful. If they fail to recognise  
this, and the wisdom of the course Her Majesty's Government  
is determined to pursue, then we pity their denseness. We  
desire to act honourably; we desire to ensure peace, and force  
will not be resorted to unless to defend ourselves from force.  
There is every likelihood that the policy we have adopted will  
meet with success, and we counsel the Uitlanders to be patient  
awhile and await the outcome hopefully. We are glad that



Dr. HARRIS recognises the wisdom which Mr. CHAMBERLAIN has all along displayed, and rejoices that "at last a great statesman stands at the head of Britain's Colonial Empire." Mr. CHAMBERLAIN's one great object is to relieve the burdens of the Uitlanders, but he can only do so by showing conclusively that his one aim is to respect the independence of the Transvaal; that he has no questionable objects in view; and that he only desires justice to prevail. We are afraid that Dr. HARRIS's article will not assist him in this delicate task. It will tend to make the President more suspicious, whilst it will excite the imaginations of those who cannot depend upon culture and wisdom to restrain them. It is quite possible, as he argues, that unless these grievances are redressed, distrust of and discontent with England will spread from the Transvaal throughout the whole of South Africa, and that our ultimate loss of a valuable tributary of the Empire will be the almost certain result. This is the conclusion at which he arrives, and which he wishes to forcibly impress upon us. This will be the regrettable, the disastrous consequence of leaving the grievances unredressed. But is it probable? How can our colonists distrust us when they see we are striving might and main to redress those grievances, and in the only honourable and possible way? They have enjoyed the blessings of British rule, and are they likely to give up those blessings for the sake of a small section of their brethren in an independent Republic, who would promptly emigrate to a British colony if the mining industry happen to collapse? All we can say is that we could, in that case, display no unbecoming admiration of their intelligence, or of their sense of nobility and high-mindedness, to say nothing of self-preservation. If they revolt through impatience and mistrust we may lose a few material advantages, but not those high and grand qualities of human nature which we should prefer to be recorded in the history of the nation.

But Dr. HARRIS proceeds upon surer grounds when he asks us to hold President KRUGER and the Boer Government in mistrust. We have all along, with all the force at our command, showed that their actions are open to question, but we have admitted the delicacy of judging them too hastily. Dr. HARRIS, however, cites facts in support of his arguments and advice, which are strongly significant, and should, at the very least, urge us to display more caution and circumspection in the future, and to watch more narrowly the movements of this shrewd nation. These facts are too long to quote, and we would urge our readers to peruse them in the original article. But, significant as they are, we do not think they predict the fate of South Africa as foreshadowed by this writer. At all events, it is well to be awakened to possibilities which might at the moment seem remote. Still, it does not follow that mistrust of Her Majesty's Government will alienate our brethren in the whole of South Africa. We are quite aware that a grave mistake was made in the past. But we must shut the past from view, and deal only with the facts of the present. We can only deal with them in a certain manner, and that manner is being exhibited. Therefore, summing up Dr. HARRIS's article, we admit he has made out a good case, but we are afraid that he has argued from too narrow a point of view, and though foreshadowing possibilities, he has ignored potentialities more prophetic of good.

## MINING IN THE MALAY PENINSULA.

### I.

TO the average untravelled Englishman, the Malay Peninsula is merely a small strip of jungle-covered land in the distant Orient, inhabited by picturesque but blood-thirsty natives, whose sole occupation, when they happen not to be cutting each other's throats, is the plundering of any defenceless merchant junk that may come within the reach of their swift piratical prahus. Such a picture would, no doubt, have been a fairly correct one a century ago, and, perhaps, might be still were it not for the fact that England has assumed or acquired a kind of mild paternal authority over a considerable portion of the Peninsula, and manages to keep in check with, upon the whole, considerable success the high passions and fierce tempers of its turbulent inhabitants. A Malay, lazy though he is, would any day far sooner fight than eat, but with all their innate love of fighting, and constitutional objection to anything like steady work, they have many admirable qualities that go far to compensate for their lawless dispositions. They are naturally brave, courteous, generous, and even honest, and no one can live long among them without learning to like them. For all that, however, we did not undertake the task of keeping order in this Peninsula from purely philanthropic motives. We went there, as becomes "a nation of shopkeepers," because there was something to be made by it—and that something is dependent on the mineral wealth of the country. True it is that the agricultural produce of the land is worth a great deal, but the mineral wealth is far more important. The earliest writers who mention the Malay Peninsula refer to its richness in gold; it seems almost certainly to have been the *Aurea Chersonesus*, the golden Chersonese of the ancients, although there is nothing to show how or when this name was applied. As late as the 17th century we find writers referring to the abundance of gold in Malaka, although many of them either say or imply that the gold was derived, not from the Peninsula proper, but from the islands of the adjacent Archipelago.

A glance at the map will show that the Malay Peninsula is a long, narrow strip of land, whose total length from the Island of Singapore in the extreme south to its junction with the Isthmus of Kra in the north is some 600 miles, its width being between 100 and 200 miles, and its total superficial area some 75,000 square miles. It extends from latitude  $1^{\circ} 15' N.$  to  $7^{\circ} N.$ , the axis of the Peninsula running N.N.W. Above  $5^{\circ} N.$  latitude, or thereabouts, the Peninsula is divided into a number of semi-independent states under Malayan

rulers, nominally, at any rate, subject to a Siamese suzerainty, rather ill-defined, or about as definite (say) as is that of Great Britain over the Transvaal. Below  $5^{\circ} N.$  latitude the Peninsula is again sub-divided, the extreme south being occupied by the independent native State of Johore, whilst the remainder of the eastern side up to the central mountain chain forms the State of Pahang, the west coast comprising the States of Perak, Selangor, and Sungai-Ujong; the latter is partially incorporated with Jelebu, an inland State, and there is another small inland State—namely, Negri-Sembilan. All these, except Johore, are native Malayan States under British protection—which phrase here means a good deal—protection and possession being, if not quite convertible terms, at any rate so much alike as to savour rather of distinction than of difference. At any rate, the Rajahs of these protected States have complete freedom, and can do exactly as they please—provided only that their wishes coincide precisely with those of their respective residents; the duty of the latter official is to tender advice to the Rajahs—and to make them take it. Johore is, however, an independent native State; but then it produces no minerals to speak of. We have not mentioned the various small Crown colonies that together form the Straits Settlements proper, because these latter again are of no importance as mineral producers.

Turning now to the geology of the Peninsula, we shall find that our knowledge of it is extremely scanty. None but those who have attempted to pursue geological researches in a country covered with jungles penetrable only by means of the bushman's axe, or the Malay's heavy knife, where almost every vestige of rock disappears beneath a heavy mass of vegetable matter, and where the rocks themselves are weathered and decomposed to depths of which dwellers in temperate zones have no conception, only those who have attempted geological studies in the face of such immense difficulties can have any adequate idea of how much labour is required to accomplish very little, and only such can fairly understand why the data at our command are so meagre. The topographical features of the Peninsula show a main mountain chain running from north to south, forming an axial ridge, which is the structural backbone of the Peninsula. This chain runs comparatively close to the western side, and the western slopes are accordingly steep, whilst those on the east are more gentle. Many spurs diverge from the main range principally to the east, and one of these, which really forms the most important mountain mass of all, runs off to the east, forming the northern watershed of the Pahang river basin, whilst several important rivers, such as the Patani, the Telubin, the Kelantan, &c., run from its northern flanks into the Gulf of Siam. This central mountain mass is still utterly unknown; probably none of the Malays themselves have ever explored it; its recesses form the mountain fortresses, within which the primitive aborigines of the Peninsula, the Sakei, "hill men," or "jungle men," as the Malays term them, chiefly dwell unmolested and unknown. No European has yet succeeded in reaching this mountain chain, the principal peak of which, known as Gunung Tahan, is supposed to be about 10,000 feet in height. Wherever the mountain axis of the Peninsula, or the subsidiary chains have been studied, they are found to consist of granitic rocks of various kinds apparently, together with certain eruptives, such as felites and diorites, which, however, play a part of no importance whatever in the main structural scheme. On the flanks of the granite are everywhere highly metamorphic schists, micaceous and talcose, with occasional sandstones passing into quartzite, and one or more slaty belts, very often graphitic. The general strike of all these rocks is parallel to the run of the mountain chain, and they seem to dip from it at steep angles, but are much twisted and contorted in places. Masses of white saccharoidal limestones, in places towering into huge cliffs, overlie both granite and schists, unconformably to all appearance. The lower hills consist at times of laterite, the connection of which with the principal formations has not been traced, whilst the extensive flats of low country on the east and north-east consist chiefly of recent sand deposits.

There are very many minerals known to exist in the Peninsula, but the only two that have yet attained to any commercial importance are those of tin and gold. The tin deposits, as is well known, are mostly in the form of alluvial gravels. The bedrock may be kaolin, or more rarely shale or limestone; upon this is a layer of stanniferous gravel from a few inches to, in one quite exceptional case, 80 feet in thickness. As a general rule the deeper the overburden the thicker the pay gravel. It may be fair to assume that the average proportion of overburden to pay gravel is between 4 and 5 to 1; perhaps 17 feet of overburden and 4 feet of pay gravel may be taken as somewhere about the general average. As regards the richness of the pay gravel, it may be taken at some 25 lbs. of black tin (containing 68 to 69 per cent. of metal) to the cubic yard. Tin mining in the Peninsula is almost entirely in the hands of the Chinese, who own most of the mines and work them in their own slow, steady, primitive fashion, doing all the work laboriously by hand with very rude appliances. A gang of men first clear the jungle off a definite area of tin-bearing land; then they commence to strip off the overburden, using a heavy hoe as almost their only tool; having thus got down to the pay gravel, they excavate that in the same way, and wash the gravel in short boxes with a few transverse riffles till the tinstone is pure enough to smelt. They then smelt it in small primitive blast furnaces, or else sell it to the Straits Trading Company at Singapore, a company that is doing a splendid business in buying tin ore from the Chinese, and smelting it in reverberatory furnaces in their large and well-appointed works. As an idea of their importance, it may be stated that this company smelts annually considerably more tin than the whole of Cornwall produces.

The above description of the Chinese method of working is a mere rough outline—rougher, even, than their own methods of working—and all detail has designedly been omitted from it.

## THE REPORT OF THE CHARTERED COMPANY.

ELSEWHERE we publish in full the annual report just issued by the directors of the British South Africa Company. This report has been for some time anticipated with intense interest, but that interest declined somewhat on the announcement that no particulars would be forthcoming of the incidents which, during recent weeks, have given rise to such excitement throughout the world. It is not surprising, therefore, that the directors are silent upon the incursion of Dr. JAMESON in the Transvaal territory. They had no option in the matter, of course, for it would be a delicate task to refer to a matter *sub judice*. The report brings us no further than March, 1895, and thus we have no account of what has been done during the subsequent 11 months. This, though judicious, perhaps, is unsatisfactory to the shareholders and to the public generally. The first part of the report deals with the railway extension, which is of such vital interest to the future of the country, and upon which the welfare of the mining industry is vitally dependent. The railways have been pushed forward with commendable vigour, and from this point of view the statements in the report must be regarded as most satisfactory. The Bechuanaland Railway Company was formed in 1893 for the purpose of constructing and working a railway from Vryburg to Mafeking and thence northwards towards the River Zambesi. The line to Mafeking was opened to traffic in October, 1894, and the net earnings for the 10 months to the end of July, 1895, has been equal to 4 per cent. per annum on the cost of this section. We are promised that the section from Mafeking to Gaborone, a distance of about 95 miles, will be opened about July. From the latter place the line will be continued to Palapye, a further distance of about 175 miles, the survey for which is almost completed. Eventually the line will be continued to Salisbury, via Bulawayo, connecting with the Beira line at Umtali. A new railway company, called the Beira Junction Railway Company (Limited), has been formed with the object of constructing a railway 36 miles in length, and when this line and the extension to Salisbury are completed, the capital of Rhodesia will be in direct communication with the sea coast at Beira. It is expected that the line will be completed and opened for traffic within a few months. We repeat that this section of the report the shareholders must regard as highly satisfactory. The Memorial Hospital to those who fell during the Matabeleland Campaign, we are informed, has been completed and opened, and, of course, in a country like Matabeleland will be a boon which will be greatly appreciated. One of the most highly satisfactory and encouraging sections of the report is that dealing with the extension of the telegraph which business, during the period under review, has been most flourishing. We are informed that the system has worked most successfully, and that no complete interruption of communication of any moment has occurred. After dealing with the many improvements introduced in the mail and passenger communication between Cape Colony and Rhodesia the report goes on to treat of the sale of stands in Matabeleland, "at which the prices realised greatly exceeded all expectations." The directors regard the result of these sales as most satisfactory evidence of confidence in the future development of the country. A little over three pages are taken up with the progress of the mining industry, and details of the subsidiary companies in which the parent concern is interested. This, probably, is the most unsatisfactory in the whole of the report, though not the fault of the directors. In connection with this, of course, we must read the detailed and voluminous reports of the Mining Commissioners at the various centres, but even an examination of these will not inform us with more certainty of the future of the whole of Rhodesia. Of course, the country is yet in its probationary state, and, as the directors observe, the work done in the numerous mines has been confined to development. Therefore, even if this report had not been printed and circulated, we should have been quite as near to a solution of the problem which at the present moment is interesting a vast community. Everybody is quite assured that there is plenty of gold in Rhodesia, but that is a very different thing from predicting that it exists in depth and that the conditions will be favourable to its economical and profitable working, though the probabilities are strongly in favour of this. Whatever may be said at present, however, is mere speculation and theory. The only encouraging statement the directors are able to give is "that most of the various companies are satisfied with the progress that has been made." To those shareholders who desire further information they refer them to the secretaries of the various subsidiary companies. Since the last report of the directors many development companies have been floated, the number of which is at the present approximately 200. Coming to the balance-sheet, the directors are unable as yet to make the revenue balance the expenditure, but there is every promise that this state of things will not much longer continue. The great progress which the company is making throughout the whole extent of the country is prophetic of future prosperity. The administration expenses, direct and indirect, amount to £142,423 4s. 9d., as compared with £65,766 14s. the year previous. The revenue amounts to £118,883 1s. 3d., as against £44,489 6s. 5d. The financial condition of the company is a very strong one. It will be remembered that the capital of the company was increased last July to £2,500,000, which has enabled the directors to pay off the debenture debt, and subscribe £900,000 to railway development; after which expenditure it leaves £600,000 in hand, which will be available for the future development of the country. We have no space to refer at any length to the detailed reports of the various mining commissioners, which accompany the report of the directors. It makes undoubtedly a valuable document from many points of view, and one worthy of preservation.



## NOTES AND COMMENTS.

Now that a Professor of Mathematics and Mechanics is about to be appointed at the Royal College of Science—better known still under its old name of Royal School of Mines—it is a pity that the powers that be do not revise this portion of the course in accordance with modern requirements of mine engineering. The School of Mines has turned out good miners and good metallurgists in plenty, but it may be noted that few of them are engineers in the true sense of the word; and those that are, owe the fact to their own abilities in despite of and not because of any instruction they may have received at their school. Obviously, if mathematics is to be taught at all, a separate chair of this subject should be founded; our doubt as to whether it should be taught is due, not to any depreciation on our part of the value of the subject, but quite the contrary. We look upon it as a subject of such pre-eminent importance that we consider that a certain amount of mathematical knowledge should be made an indispensable preliminary to admission to the College. We should like to see all candidates for admission compelled to pass a matriculation examination, in which mathematics, as far as classes A and B, as now taught, would be required of them. A sound knowledge of English and an elementary knowledge of, at any rate, one other modern language might also be required. Such an entrance examination would go far towards raising the status of the mining engineer of the future to what it should be, as others would have to work up to the standard so set. Then, by all means, let a chair of higher mathematics be founded at the College. Mechanics as an independent subject is surely obsolete, and should be merged in a chair of general engineering, which should be made a thoroughly practical one, and to which a practical mechanical engineer should be appointed, who would know and be able to teach his students the meaning of practical engineering. Lectures on mechanics and mechanism are all very well in their way, but they won't help a young mining engineer much if he should happen to find himself with a damaged rock drill on his hands in some out-of-the-way corner of the world. We do not say that a mining engineer ought necessarily to serve his time in the shops, but he will assuredly be all the better for having an idea of how to use a file or a hammer and chisel. How many students when they leave the college know how to set the valves of an engine or how to indicate one? Yet the determination of the efficiency of the machinery which will one day be under their care is certainly a portion of their duties in which they ought to be instructed. There is no part of the course of the College of Science in which reforms are more urgently needed than they are in this one, and we regret that the old deficiencies are, to all appearance, about to be perpetuated by the enforced combination in the one and the same professorial chair of the most practical and the most theoretical of all the many subjects which the modern mining engineer has to learn.

There are not many speculators who can have been more fortunate than those who have held on to their shares in the South African Gold Trust, through good and evil repute, during the last few years. The company has latterly progressed, not in that sober and orderly manner to which the more solid South African enterprises generally commit themselves, but in bounds that cover each an immensity of ground. After careful consideration, and in the belief that the figure could be permanently maintained, the board resolved last year to recommend a 40 per cent. dividend. This, accordingly, was paid, and the shareholders looked pleasantly forward to a similar return for this year. The anticipation, however, erred considerably on the side of moderation, and for the past year the dividends have totalled no less than 100 per cent.—an achievement the board have every right to regard with satisfaction and with pride. Indeed, there can hardly be room for doubt that the remarkable success which has attended this company has been due to the able and spirited management with which it has been favoured, and the handsome bonus voted to the directors on Monday last, while it showed that the shareholders were dominated by no narrow penny-wise and pound-foolish policy, was no whit more than bare deserts would justify. A distinction must ever be drawn in criticism and judgment between the companies devoted to mining proper, and to those trust and financial companies which have latterly established so excellent a record in City history. Given a good mine, and a fairly competent management, and a board of directors, provided they give exercise to the smallest business aptitude, cannot fail to present a highly appetising balance-sheet. In regard to a finance company, however, the directors are all responsible and all powerful, and whatever measure of success they may attain is due to their own influence and knowledge in the company arena. Thus the vote of an additional £2000 for the past year was a graceful and fitting recognition of the immense indebtedness in which the shareholders stand to their board.

The conservative policy hitherto pursued by the board in relation to finance is another strong testimony to their wisdom. Out of the £522,736—the brilliant result of the year's working—£50,000 is to be carried to reserve, and £221,878 to the current year's credit. Achievements such as these really speak for themselves, and to a large extent disarm any sort of comment. The wise resolve, taken a considerable time ago, and up to the present maintained inviolate, not to pay a dividend that did not give reasonable prospect of being continued in the future, does not seem to be in any immediate danger of being broken. With a strong reserve fund, the large sum carried to fortify the current account, and a reasonable run of fortune, there does not seem much reason to apprehend that the dividend declared on Monday—magnificent in proportions though it was—may not be paid for several years yet to come. The company's

interests are certainly bound up to a considerable degree with deep levels, and it is highly satisfactory, both on this and other grounds, to know that the deepest bores as yet sent down go far to justify their policy in this matter. It was no mere idle utterance that Mr. H. E. M. Davies gave as to the lasting services done to the Transvaal by the Consolidated Gold Fields Company, in proving the payable character of the deposits in the lower levels. In its future career the industry depends largely upon the question which this well-known and influential company has taken in hand to solve, and the determined manner in which they are setting about the work is well from every point of view. Mr. Hammond's statement that he is convinced that profitable mining is feasible to a vertical depth of 5000 feet is strong presumptive evidence that the experiment will ultimately turn out as satisfactorily as even the most sanguine ventured to hope. The eloquent claim which Mr. Davies entered against the three grievances which form an incubus upon the mining industry in South Africa—that is to say, the heavy and unwarrantable taxation, the dynamite monopoly, and the Nederlands Railway monopoly—goes some way to explain the deplorable ferment of feeling which has recently manifested itself in the Transvaal.

The cheering which greeted the appearance of Dr. Jameson and his men at Bow-street, arraigned upon a charge, the gravity of which stands out in clear relief, was, from whatever point of view regarded, a highly regrettable episode in a succession of events themselves wholly regrettable. Court demonstrations always emanate from the more ignorant part of the community—the groundlings, as they are called—and are, of course, absolutely no index as to what view of any particular case may be taken by the intelligent and cultivated public at large. Generally, however, these outbursts come when judgment has been pronounced, and are thus freed from the stigma of being intended to weigh with the jury and to influence the upshot of the proceedings. That the contrary was the fact in this case is, perhaps, the most unfortunate feature about the whole occurrence; for the case is still *sub judice*, and all expressions of sentiment, for or against the accused, were upon that account out of place. To Continental nations, whose knowledge of the inner current of feeling and opinion prevailing in England is necessarily confined within very narrow limits, this little ebullition of gallery favour may have given an exaggerated or fictitious importance, and be magnified into an endorsement on the part of the English people of the whole of those proceedings, which now form the subject of judicial investigation. The authorities, no doubt, anticipated some such eventuality as has occurred when they brought the popular Doctor to London by stealth, but their efforts have, perhaps, tended to aggravate instead of to alleviate the general excitement. In any case it is to be hoped that capable critics abroad will learn to distinguish between passing fancy and deliberate opinion, and come to recognise the undoubted fact that the English are in the habit of tempering their patriotism with reason.

One of the most remarkable gold mining successes which can be chronicled as having been achieved during the last year or two is certainly that of the Hauraki Gold Mining Company, which, in a career of little over a year, has realised a profit that, taken in conjunction with the company's capital, may properly be called enormous. The directors' report for the period from December 14, 1894, to December 31 last, has just been issued, and defines with great precision the company's successful working during the period in question. To win gold amounting in value to £101,544 upon a subscribed capital of £40,000, and that during only a few days over 12 months is certainly a phenomenal feat in industrial matters, and at the same time attests the rare productive capacity of the Hauraki Mine. Such is the company's record for a year, and since, as we have it upon the directors' authority, "the returns continue to show satisfactory results," there is great reason to hope that similar, or even better, results, may be gained during the current year. The management, moreover, are pursuing no backward or unenterprising policy. They are at present meditating the expediency of commencing operations at the "Union Beach" and "Golden Pah" sections of the property, and are of opinion that very good returns will be obtained therefrom. The report is accompanied by an exhaustive exposition of the present state of the company's workings, and the indications in every direction appear to be highly favourable in character. Evidently the Hauraki Mine is not soon going to fall from its high estate.

We have ever been persistent advocates of the claims of Victoria, and to that end we have from time to time laid before our readers evidence of its wealth, in order to attract attention to a country which is too greatly neglected. We are absolutely assured that there are many properties in this colony which possess all the potentialities of prosperity. One of these, according to the evidence which so far has been placed before us, the Mount Greenock Gold Estate bids fair to be, the statutory meeting of which concern was held this week. We advise our readers to read and study the full report which we publish elsewhere, in the assurance that they will come to our own way of thinking, and acknowledge that the property is one of undoubted promise. In the first place, it is highly recommended by an eminent expert—namely, Mr. Reginald A. Murray, the Government Geologist, who, amongst other eulogistic statements, says:—"I am absolutely confident in the opinion that the portion of the lode contained within the property will be found highly remunerative if worked in a proper manner. . . . I can with the utmost confidence recommend this property to the attention of investors as one of the highest promise." We are extremely gratified—and it is one which investors should receive with particular pleasure—at the announcement that it is the intention of the Victorian Government to provide special plans, and reports and statistics, for the purpose of protecting shareholders and others by giving accurate and unbiased information. If investors will take note of this, it will to a considerable extent guarantee them from the

frauds which some persons are only too ready and willing to perpetrate.

COMPARED with the preceding year, the results of the mining operations carried on in the Gympie gold field during the year which ended last December, cannot be considered to be of a very satisfactory nature. Still, there is a silver lining to every dark cloud, and the conclusions arrived at in connection with the prospecting work are wonderfully encouraging, and lead one to confidently hope that in the course of the present 12 months the new developments will materially increase the gold output from this district. During 1895 the yield was 78,882 ounces from over 80,000 tons of stone, giving an average of only a fraction over 1 ounce per ton. The total dividends declared were £125,268 odd, and the calls made amounted to about £118,048. In 1894—an exceptionally good one—the gold yield was much larger, and, consequently, so were the dividends, while the amount called up was less. More than one half of the dividends declared in 1895 was paid by the Phoenix Company, from whose mine the average monthly yield was 2180 ounces. In the month of October, Jones' Caledonian was to the front with a crushing of 23 tons, which yielded nearly 70 ounces per ton, but, unfortunately, this was only a temporary find. Altogether, the outlook for the present year, if, perhaps, not so promising as it might be, is a cheerful one, and gives the shareholders in the many interested mining companies some hope of satisfactory profits being made.

ALTHOUGH sufficient time has not elapsed for a complete table of the gold productions from the Australian fields during 1895 to be available, sufficient material is now in the hands of authorities to enable them to form some fairly accurate judgment as to the position of affairs. The transactions for the year of the Sydney and Melbourne branches of the Royal Mint include the following figures, together with those of the year 1894:—Victoria, 721,878 ounces in 1895; 721,014 ounces in 1894; New South Wales, 202,794 ounces in 1895; 222,988 ounces in 1894; Queensland, 470,494 ounces in 1895; 579,300 ounces in 1894; West Australia, 226,135 ounces in 1895; 199,904 ounces in 1894; New Zealand, 83,851 ounces in 1895; 44,855 ounces in 1894. From these figures it will be perceived that, while in Victoria, West Australia, and New Zealand there has been an increase in the production, in the other two—New South Wales and Queensland—there has been a decrease, and a considerable one, too, in the latter district. The most rapid advance has been made by New Zealand, a result undoubtedly due to the progress made in development there during the past two years. The decrease in New South Wales is not surprising under the circumstances. The year 1894 was a favourable one, while the past season was a very dry one. In the aggregate the increase of gold during the year was in value £20,000, but the dividends show a decrease of £5971 as compared with 1894, but an increase of about £20,600 as compared with 1893.

ACCORDING to the Hon. Mr. Cadman, the mining industry in New Zealand has made rapid progressive strides during the last few months, a very satisfactory feature being that there are hopes of labour and capital working together harmoniously. Of course, everyone knows that if the gold fields are to be made to pay, every inducement must be offered to capitalists to invest their money in the various undertakings. The increase in the number of miners is remarkable, and now in most of the districts large towns are being built up, and there is every prospect of a flourishing time in store for those engaged in the industry. In the Ohinemuri district the Government are materially assisting in the development of the deeper levels, and already there are 250 stamps at work. Dealing with the recent legislation of the Colonial Government, Mr. Cadman points out the judiciousness of allowing the monopolisation of the country, making especial mention of the Ohinemuri district, where the great back country was lying idle. It must be remembered that when a square mile of land was taken up the conditions rendered it compulsory that £3 should be spent on every acre each year, or otherwise the claim would fall through. Under these circumstances more money would often be spent upon prospecting areas than is now spent upon many special claims. The new law does not materially effect the operations of mining companies because no development works can be expected to be in any way successful if only such a ridiculously small sum is spent upon them.

CONSIDERABLE impetus will be given to alluvial mining in New South Wales should the attempt now being made again to work the alluvial leads of Forest Reefs, near Orange, prove in any way successful. Doubtless, it is in the remembrance of many that some 10 years ago the mining operations which were the carried on from 200 to 300 feet below the surface were brought to a rather abrupt termination by the very heavy inrush of water. In consequence of this many hands were thrown out of employment, for at one mine alone—the Great Extended—over £25,000 was paid in wages from gold won from the old river beds. With the object of tapping and developing the main alluvial bed, which had been previously lost, a small company has recently been formed. The promoter has had the good fortune to obtain from the Mines Department a diamond drill to start the venture, so that the company will be saved from having to spend a large sum of money in this direction at the outset. The site fixed for the first bore is a point 200 feet from the Great Extended drive, and it is stated that the drill to be used is capable of going down from 20 to 25 feet per week. If deemed necessary and expedient, a depth of 300 feet will be reached before the boring operations are ceased. Looking at the rich finds which were formerly made in this district, one may hope that a large amount of success will attend the present exploration work; but a word of caution to the explorers—in view of the water difficulty which was encountered ten years ago—might not, we venture to think, be at all out of place.

THE JUMPERS GOLD MINING COMPANY (LIMITED).—The 17th half-yearly general meeting of the company will be held at Johannesburg on April 14 next.



## THE MINING MARKET.

FRIDAY EVENING.

Business very quiet after the arrangement of an uneventful Settlement.—Important rise in Indians.—Chartered well supported.

LITTLE improvement can be reported from the Mining Market as far as public interest is concerned. The fourth settlement of the year has passed off without any feature of importance and operators are all ostensibly busy with dealings for the middle of March. In point of fact, however, there is very little actual business doing. The big men appear to prefer the attitude known as "sitting on the fence." They do not regard the time opportune for giving a lead and as the non-professional public evinces little desire to be led, the jobbers find time hanging heavily on their hands. The sharp burst of cold weather which attacked London in the middle of the week, in all probability contributed to the curtailment of business. It is an open secret that many of the Johannesburg financiers have not yet covered the bear sales in which they indulged before the famous raid, and to this fact may be attributed the exaggeration of the labour troubles, and the evident desire on the other side to make the worst of every trifling drawback. In the apathetic frame of mind in which the public remains, such tactics have not much more effect than have the spasmodic attempts of supporters of the market to galvanise specialities. Nobody seems to care about news of any sort, probably owing to the fact that so many warnings have been uttered as to the unreliability of the majority of it. Dr. Jameson's arrival in this country had absolutely no effect upon the share market. The issue of the Chartered report had not much more, though it must be allowed that Chartered shares continue to monopolise the lion's share of attention in the Kaffir Market. The foregoing remarks apply more immediately to the South African Market, but there is no better report forthcoming from the Westralian department. The prices of two or three shares have moved a trifle in each day, but the market, as a whole, is in a state of suspended animation. Everybody is waiting. The Indian and New Zealand groups have been proportionately more active, and a good deal of quiet strength is to be found in their less popular corners of the Miscellaneous market.

Saturday being the last day of the old account, markets were as dull as ditch water. Barnato stocks were especially dull, and East Rands were flat at one time, though they rallied before the close. Westralians were quiet, and there was little doing in Miscellaneous. Broken Hills were conspicuously weak. The carry over arrangements absorbed attention on Monday morning, but the arrangement of the Account did not take long, although Contango charges were materially higher than those ruling at recent settlements. Six per cent. was a fair average charge on the better class South African shares, but bulls of Chartered had to pay considerably more. There was not much demand for accommodation in Westralians, and the making up in Miscellaneous was easily arranged. On Tuesday the making up in other departments of the House explained a dull opening, but there was a decided rally before the close with increased business in Westralians and actual strength in Indians. Business on Wednesday was almost at a standstill so far as the Kaffir section was concerned, but West Australians were buoyant, although there was not a large amount of business offering. New Zealand and Indians again attracted attention by their activity. The Chartered Company's report was issued after business hours, so that its effect was not felt until the following morning, when, after a dull opening, fair strength was developed in Chartered, which had a stimulating effect on other things. West Australians were not extensively dealt in and closed irregular, but Indians were again firm, and a demand was noticed for Charters Towers shares. Business has been quiet to-day, but the gains have outnumbered the losses. Rhodesian properties have shared in the strength of Chartered. The special features were the strength of Goldfields Deep, West Australian Goldfields, and Mysore Gold.

## South Africans.

The dealings in Chartered during the week have been on a fairly large scale, but the net result is nothing more important than the loss of  $\frac{1}{4}$  at  $5\frac{1}{2}$ . Fictitiously, or otherwise, the account was made to show a large increase in the volume and the weakness of the speculation for the rise. Whereas a fortnight previously the Contango averaged 3d., on Monday some of the smaller bulls were made to pay as much as 9d. per share. The issue of the report on Wednesday evening was succeeded by a weak opening on Thursday, the shares being offered at a shade over 5. As the day progressed, however, and operators had time to digest the voluminous manifesto, a more cheerful view was taken of the outlook and the price hardened up to 5 $\frac{1}{2}$ . Early this afternoon as much as 5 $\frac{1}{2}$  was bid. Consolidated Gold Fields were down to 12 $\frac{1}{2}$  in the middle of the week, but are finally unchanged on balance at 13 $\frac{1}{2}$ . The average contango rate to responsible people was not much heavier than 6 per cent., though in special cases heavy exactions were made. The 15s. dividend was deducted from Gold Trusts after the Account, and the price, accordingly, shows a gain of  $\frac{1}{4}$  at 9 x d. The Chairman was enabled to make a highly satisfactory speech at Monday's meeting, although it had no marked effect upon the price of the shares. Gold Fields Deep have been quietly bought, and close half a point higher at 10 $\frac{1}{2}$ . Rhodesian properties generally have commanded attention, in view of the pronouncements of the Chartered Company. A conspicuous advance is shown in Rhodesian Mining and Finance, the fully paid shares closing  $\frac{1}{2}$  higher at 1 $\frac{1}{2}$ . This company, owing to the extent to which its assets are distributed over the most promising districts of Charterland, offers attractions after the manner of a trust company. The partly-paid shares have sympathised in the upward movement, though not to an equal extent, closing at  $\frac{1}{2}$  premium. Rhodesia (Limited) are  $\frac{1}{4}$  higher at  $\frac{1}{2}$ , whilst Rhodesia Exploring are unchanged at 8 $\frac{1}{2}$ . Some attempt has been made to run up African Estates, which close  $\frac{1}{2}$  higher at 2 $\frac{1}{2}$ , rumour having it that Paris has been a buyer. Small declines are shown in Oceana at 2 $\frac{1}{2}$ , Oceana Minerals at 1 $\frac{1}{2}$ , Heidelberg Estates at 1 $\frac{1}{2}$ , and Bechuana lands at 2 $\frac{1}{2}$ , whilst Mozambique are  $\frac{1}{4}$  up at 1 $\frac{1}{2}$ . The changes in the Barnato group are very slight. Barney's departure for the Cape has been followed by positive inactivity amongst his specialities, except in the case of Johannesburg Investments, which have been sold on the resignation of three of the directors. Up to the present only one of these gentlemen has explained his course of action, which he states to be owing to his own ill-health. The shares are  $\frac{1}{4}$  lower at 3 $\frac{1}{2}$ . Profit taking in Johannesburg Waterworks has reduced the price  $\frac{1}{4}$  to 2 $\frac{1}{2}$ . Barnato Consols are  $\frac{1}{4}$  higher at 3 $\frac{1}{2}$ , and this completes the list of alterations. Mays stand at 3 $\frac{1}{2}$ , New Primrose at 6 $\frac{1}{2}$ , Glencairn at 3 $\frac{1}{2}$ , Buffeldoon at 3 $\frac{1}{2}$ , and Barnato Banks at 1 $\frac{1}{2}$ . In

the Robinson Group Randfonteins have monopolised attention; the contango on Monday was at times as high as 7 $\frac{1}{2}$ d., which works out at the rate of 20 per cent. per annum. In the ordinary way this would have been excuse enough for selling the shares down, but the actual consequence has taken the opposite direction, the shares having been in considerable demand over 3, and closing at that figure. The obvious inference is that the rate was manipulated. Langlaagte have lost  $\frac{1}{4}$  at 5 $\frac{1}{2}$ , whilst Block B remain at 2 $\frac{1}{2}$ , and Robinson Banks at 6 $\frac{1}{2}$ . East Rands have fluctuated with some freedom, the London market professing to follow Paris. The shares are finally  $\frac{1}{4}$  lower, at 6 $\frac{1}{2}$ . Slight reductions are shown in Comets at 2 $\frac{1}{2}$ , and St. Angelo at 3 $\frac{1}{2}$ , but the Allied Anglo-French Exploration are the turn harder at 4 $\frac{1}{2}$ . Rand Mines have fallen  $\frac{1}{4}$ , to 28 $\frac{1}{2}$ ; Goldenhuis Deep  $\frac{1}{4}$ , to 6 $\frac{1}{2}$ ; Nourse Deep  $\frac{1}{4}$ , to 5; and Roodepoort Deep  $\frac{1}{4}$ , to 2 $\frac{1}{2}$ . Consolidated Deep Levels are exceptionally  $\frac{1}{4}$  higher, at 5 $\frac{1}{2}$ . Changes in the Eckstein group are few and far between. Simmers have risen  $\frac{1}{4}$  to 21 $\frac{1}{2}$ , whilst Nigel have fallen  $\frac{1}{4}$  to 4 $\frac{1}{2}$ , Modders  $\frac{1}{4}$  to 11 $\frac{1}{2}$ , and Ferreira  $\frac{1}{4}$  to 17 $\frac{1}{2}$ . Orions have declined  $\frac{1}{4}$  to 2 $\frac{1}{2}$ , the battery being shut down owing to scarcity of water. There is hardly a single change exceeding  $\frac{1}{4}$  in the general run of African shares not already specified. Knight's stand at 7 $\frac{1}{2}$ , Crown Reefs at 10 $\frac{1}{2}$ , Meyer and Charlton at 5 $\frac{1}{2}$ , Robinsons at 9 $\frac{1}{2}$ , Sheba at 2 $\frac{1}{2}$ , and Transvaal Gold, Van Ryn, and Village Main Reef all at 6 $\frac{1}{2}$ . The small Lydenburg shares have commanded some attention, Graskops improving a few pence at 6s. 3d. Spitzkopps have been flat on rumours of the impending issue of an unfavourable report. The shares are nearly 4s. down at 14s. De Beers close  $\frac{1}{4}$  up at 28 $\frac{1}{2}$ , after being better, and a gain of  $\frac{1}{4}$  is shown in Jagers. The smaller priced Diamond shares have been in some demand, Gordons advancing to 9s. 6d., and St. Augustines to 12s.

## West Australians.

We have already indicated that the market in West Australians has been of a very restricted character. Associated were in short supply for the middle of February account, several lots having to be bought in on Monday. This had the effect of raising the price, which on Tuesday was as good as 2 $\frac{1}{2}$ . Profit-taking then set in, and the price fell quickly to 2 $\frac{1}{2}$ , at which it closes, showing a gain of  $\frac{1}{4}$  on balance. The Committee have yet to decide whether or not the shares are ex the rights to allotment of Lake View South Shares, resulting from the flotation of that Company in December last. Great Boulders are maintained at 6 $\frac{1}{2}$ , but Hannan's Brownhill have fallen  $\frac{1}{4}$  to 6 $\frac{1}{2}$ . Hannan's Napier have lost  $\frac{1}{4}$  at 1 $\frac{1}{2}$ , Golden Group  $\frac{1}{4}$  at 2, Hannan's Reward  $\frac{1}{4}$  at 3 $\frac{1}{2}$ , and True Blue  $\frac{1}{4}$  at 1 $\frac{1}{2}$ , but Hannan's Star have gained  $\frac{1}{4}$  at 1 $\frac{1}{2}$ . Menzies properties have been in demand, and gains of  $\frac{1}{4}$  are shown in Menzies Mining at 1 $\frac{1}{2}$ , and Hit or Miss at 1 $\frac{1}{2}$ . Quite a feature of the week has been a spurt of 10s. in Golden Plum to 1 $\frac{1}{2}$ , a reef having been discovered assaying 7 ounces at its lowest depth. Hampton Plains are firm at 4 $\frac{1}{2}$ . Lady Mary has risen  $\frac{1}{4}$  to 1 $\frac{1}{2}$  and Lady Shenton  $\frac{1}{4}$  to 2 $\frac{1}{2}$ . There has been some persistent buying of Mainland Consols, a heavy fall of rain being regarded as a bull point. The shares are finally  $\frac{1}{4}$  up at 3 $\frac{1}{2}$ . Sherlaw's Gold is slightly harder at 13s. There has been a good demand for London and Globe Finance up to 2 $\frac{1}{2}$  and special strength in West Australian Goldfields  $\frac{1}{4}$  higher at 6 $\frac{1}{2}$ .

## Miscellaneous.

The Charters Towers group has come into prominence this week, owing to the arrival on the spot of Herr Schmeisser, who is expected to report upon the principal properties. Brilliantly have advanced to 17s. 6d. buyers, on the determination of the company to open a London register immediately. It is also stated that a prominent North Queensland man resident in London has been invited to act as director in this country. Day Dawn Blocks have been bought in considerable quantities, and close rather higher at 12s. 6d. A 6d. dividend is declared. Brilliant Blocks have gained  $\frac{1}{4}$  at 1 $\frac{1}{2}$ , but Mill's Day Dawn are unchanged at 1 $\frac{1}{2}$ . An important rise is shown in the Indian group. Mysore have been in special demand to-day, and close  $\frac{1}{4}$  higher at 5 $\frac{1}{2}$ . Champion Reefs have put on  $\frac{1}{4}$  at 6 $\frac{1}{2}$ , and it is suggested that the dealers are short. Gains of  $\frac{1}{4}$  are shown in Nundydroog at 2 $\frac{1}{2}$ , and Oregum at 3 $\frac{1}{2}$ . Mysore West have risen 3s. to 25s., and Mysore Wynand 4s. 6d. to 24s. 6d. Considerable strength has been shown in the New Zealand group. Hauraki is 1s. up at 16s. the dividend declaration completing an aggregate of 200 per cent. within 15 months. Waihi at 6 $\frac{1}{2}$  and Silverton at 3 $\frac{1}{2}$  are  $\frac{1}{4}$  better. Kathleen's have been in demand at 3s. 9d., and Kapanga at 10s. 6d. The upward movement in copper shares has made further progress, Tintos having scored  $\frac{1}{4}$  at 19 $\frac{1}{2}$ , Anaconda  $\frac{1}{4}$  at 6 $\frac{1}{2}$ , and Masons and Copiapo  $\frac{1}{4}$  each at 3 and 2 $\frac{1}{2}$ . Golden Feathers have put on 2s. 6d. at 11s. 6d., and La Yescas have been enquired for at 4s. Gains of  $\frac{1}{4}$  are shown in Wentworths at 1 $\frac{1}{2}$ , and Aladdins at 1 $\frac{1}{2}$ . Broken Hills, after being flat, are finally  $\frac{1}{4}$  better at 21 $\frac{1}{2}$ , ex a dividend of 1s.

## STOCK EXCHANGE SETTLING DAYS.

Settling Days on the Stock Exchange are as follows:—

## CONSOLS.

## STOCKS AND SHARES.

Monday, March 2 | Wednesday, April 1

## MARCH.

Wednesday, March 11 | Thursday, March 12

Thursday, March 26 | Friday, March 27

Contango Days for Mining Market:—

Monday, March 9 | Tuesday, March 24

CONSOLIDATED GOLD MINES OF WESTERN AUSTRALIA.—The Mining Journal (Perth) says:—"We have seen several diamonds from Nullagine, brought to Perth by Mr. A. F. Calvert, which that gentleman has taken with him to Melbourne for examination by experts. They appear to be very fine stones, and come from the battery boxes at Nullagine. The whole of the group of mines where the diamonds have been found has been purchased by Mr. Calvert on behalf of the Consolidated Company. Mr. Calvert informs us that Mr. Augustus Roe has quite a number of the stones, and that all of them have been found in the same way without special prospecting.

A COMPANY which at its first annual meeting declares 100 per cent. dividend, and thus returns to original proprietors the whole of their capital, is something of a *rara avis*. The Anglo-Continental Syndicate can claim the distinction. At the meeting held the other day the Chairman stated that the accounts to November 30 last showed a net profit of £51,289. The company was formed in the early part of last year to undertake the operations of a finance company in connection with mining properties in South Africa, Australia, and New Zealand. At the present moment special attention is being directed to New Zealand enterprise, and it is stated that Herr Schmeisser is about to visit several properties to report for this company. The shares on the strength of the 100 per cent. dividend are quoted at 27-16.

## THE METAL MARKETS.

## LONDON METAL MARKET.

THE METAL MARKET, LONDON, FEBRUARY 28.

## Copper.

AN excellent consumptive demand contrasted with a growing scarcity of refined copper, and a consequent advance in the value of both American and English sorts has induced extensive and sound buying of G.M.B.'s, in which the speculative element has played an unusually limited role. The result is reflected in the very strong market which we have to report upon this week, G.M.B.'s having steadily risen, with very trifling checks, from £15 12s. 6d. s.c. to £16 11s. 3d., and from £15 13s. 9d. to £17 three months. The transactions totalled about 9000 tons. The market closed strong at £16 10s. to £15 12s. 6d. s.c., and £16 17s. 6d. to £17 three months. Lake copper is now held for 11 $\frac{1}{2}$  cent., and all makers are very chary with their offers.

The rise of  $\frac{1}{4}$  in the price of silver caused an advance in the value of Tin at the beginning of the week, the spot price going up from £93 7s. 6d. to £91 on the opening day and £91 2s. 6d. on Tuesday, whilst three months touched £91 12s. 6d. A relapse to £90 15s. occurred on Wednesday followed by a fresh advance to £91 8s. 9d., which was done to-day. Then came towards the end a fall of about 10s., the market closing flat with sellers at £90 17s. 6d. s.c., and £91 10s. three months. Billiton opened at 35 $\frac{1}{2}$  s.c., and closes at 35 $\frac{1}{2}$  s.c., with three months at 37, and spot Banca at 37 $\frac{1}{2}$  s.

## Fig Iron.

The shipments from Scotland last week showed an increase of about 4700 tons over those of the parallel week of 1895. In Glasgow the value of cash Scotch has varied between 47s. 1 $\frac{1}{2}$ d. and 47s. 5 $\frac{1}{2}$ d., closing at the best, with hematite at 48s. 11 $\frac{1}{2}$ d. and Middlesbrough at 35s. 6d.

## Lead.

Is steady, but without much life, at £11 7s. 6d. soft foreign, and £11 10s. English.

## Spelter.

Closes quieter at £14 17s. 6d. ordinary, and £15 2s. 6d. specials.

## Antimony.

Unchanged at £19 10s. to £20.

## Quicksilver.

Continues steady at £7 2s. 6d. firsts, and £7 2s. seconds.

The following are to-night's (February 28) prices of metals:—

Copper.										S. & d.		S. & d.			
Tough cake and ingot	...	...	...	...	...	...	...	...	...	49	15	0	50	0	0
Best selected	...	...	...	...	...	...	...	...	...	51	0	0	51	10	0
Electrolytic Copper	...	...	...	...	...	...	...	...	...	52	15	0	53	12	6
Sheets and sheathing	...	...	...	...	...	...	...	...	...	...	...	...	57	0	0
Flat bottoms	...	...	...	...	...	...	...	...	...	...	...	...	57	0	0
Chili bars	...	...	...	...	...	...	...	...	...	...	...	...	57	0	0
Good merchantable,	...	...	...	...	...	...	...	...	...	46	12	6	47	0	0
Copper tubes, seamless	...	...	...	...	...	...	...	...	...	...	...	...	0	0	7 1/2
Alloys.															
BRASS: Wire	...	...	...	...	...	...	...	...	...	...	...	...	0	0	5 1/2
" Tubes (solid drawn)	...	...	...	...	...	...	...	...	...	...	...	...	0	0	5 1/2
" Sheets	...	...	...	...	...	...	...	...	...	...	...	...	0	0	5 1/2
PHOSPHOR BRONZE: Alloys II,	...	...	...	...	...	...	...	...	...	...	...	...	73	0	0
" " III, or	...	...	...	...	...	...	...	...	...	...	...	...	81	0	0
" " VII, or	...	...	...	...	...	...	...	...	...	...	...	...	83	0	0
" " XI, or	...	...	...	...	...	...	...	...	...	...	...	...	78	0	0
" " Vulcan brand A1	...	...	...	...	...	...	...	...	...	...	...	...	72	0	0
DURO METAL	...	...	...	...	...	...	...	...	...	...	...	...	72	0	0
BULL'S METAL	...	...	...	...	...	...	...	...	...	...	...	...	65	0	0
Perforbronzes (Vilvian's).															
Ingots	...	...	...	...	...	...	...	...	...	0	0	5 1/2	...	...	...
Ordinary sheets, plates, bolts and bars	...	...	...	...	...	...	...	...	...	0	0	6 1/2	...	...	...
Screw bolts and nuts	...	...	...	...	...	...	...	...	...	0	0	8 1/2	...	...	...
Pump rods, plain	...	...	...	...	...	...	...	...	...	0	0	7 1/2	...	...	...
" finished	...	...	...	...	...	...	...	...	...	0	0	10 1/2	...	...	...
DELTA METAL: No. 4 (per ton)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
" Sheets and plates (per lb.)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
" Bars, round, square, flat (per lb.)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
" hexagon (per lb.)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Tin.															
English, ingots, f.o.b.	...	...	...	...	...	...	...	...	...	...	...	...	64	1	0
" bars	...	...	...	...	...	...	...	...	...	...	...	...	65	1	6
" refined	...	...	...	...	...	...	...	...	...	...	...	...	66	1	0
Straits, spot and 3 months respectively	...	...	...	...	...	...	...	...	...	60	17	6	61	10	0
Australian spot, and three months respectively	...	...	...	...	...	...	...	...	...	61	1	0	62	2	6
Banco (in Holland)	...	...	...	...	...	...	...	...	...	...	...	...	62	12	6
TIN PLATES: Charcoal, best quality	...	...	...	...	...	...	...	...	...	0	14	0	0	17	0
" ordinary	...	...	...	...	...	...	...	...	...	0	10	9	0	13	6
" Coke, best quality	...	...	...	...	...	...	...	...	...	0	10	0	0	13	3
" ordinary	...	...	...	...	...	...	...	...	...	0	9	0	0	12	9
These prices of tinplates are f.o.b., at Swansea; at Liverpool 8d. per box more.															
Iron.															
Pig, G.M.S., f.o.b., Clyde, spot	...	...	...	...	...	...	...	...	...	...	...	...	2	7	5
" Scotch pig, No. 1 Gartsherrie	...	...	...	...	...	...	...	...	...	...	...	...	2	11	0
" " Giltshire	...	...	...	...	...	...	...	...	...	...	...	...	2	13	6
" " Clyde	...	...	...	...	...	...	...	...	...	...	...	...	2	10	6
" " Govan	...	...	...	...	...	...	...	...	...	...	...	...	2	8	0
Bars, Welsh, f.o.b., Wales	...	...	...	...	...	...	...	...	...	...	...	...	5	5	0
Plates	...	...	...	...	...	...	...	...	...	...	...	...	6	5	0
Bars, Staffordshire, at works	...	...	...	...	...	...	...	...	...	...	...	...	5	7	6
Sheets	...	...	...	...	...	...	...	...	...	...	...	...	7	1	3
Plates	...	...	...	...	...	...	...	...	...	...	...	...	6	10	0
Hoops	...	...	...	...	...	...	...	...	...	...	...	...	5	15	0
Ship plates, Middlesborough	...	...	...	...	...	...	...	...	...	...	...	...	4	18	3
STEEL: English spring	...	...	...	...	...	...	...	...	...	...	...	...	15	6	0
" " cast	...	...	...	...	...	...	...	...	...	28	0	0	52	0	0
" Rails at works, according to section	...	...	...	...	...	...	...	...	...	4	2	6	4	10	9
Lead.															
Spanish or soft foreign	...	...	...	...	...	...	...	...	...	11	7	5	11	10	0
English pig, common	...	...	...	...	...	...	...	...	...	11	10	0	11	12	6
" sheet and bar lead	...	...	...	...	...	...	...	...	...	...	...	...	12	0	0
" pipe	...	...	...	...	...	...	...	...	...	...	...	...	13	0	0
" red	...	...	...	...	...	...	...	...	...	...	...	...	14	10	0
" white	...	...	...	...	...	...	...	...	...	...	...	...	17	10	0
" patent shot	...	...	...	...	...	...	...	...	...	...	...	...	15	5	0
Spelter.															
Silesian ordinary brands	...	...	...	...	...	...	...	...	...	...	...	...	14	17	6
" special brands	...	...	...	...	...	...	...	...	...	...	...	...	17	2	0
English Swansea	...	...	...	...	...	...	...	...	...	...	...	...	15	15	0
Sheet Zinc	...	...	...	...	...	...	...	...	...	13	2	6	13	5	0
Antimony.															
Antimony	...	...	...	...	...	...	...	...	...	29	10	0	30	0	0
Quicksilver.															
Flasks, 75 lbs. warrants	...	...	...	...	...	...	...	...	...	7	2	6	7	2	6
One, c.i.f., U.K. ports	...	...	...	...	...	...	...	...	...	0	0	11	0	1	1
1st quality, 50 per cent. and upwards	...	...	...	...	...	...	...	...	...	0	0	10	0	1	0
2nd " 47 per cent. to 50 per cent.	...	...	...	...	...	...	...	...	...	0	0	9	0	1	0
3rd " 40 " 47 per cent.	...	...	...	...	...	...	...	...	...	0	0	9	0	1	1
Aluminium.															
98-99 per cent. (guaranteed 98 per cent. min.) in	...	...	...	...	...	...	...	...	...	Per lb.	...	...	Per lb.	...	...
ingots (1 cwt. lots)	...	...	...	...	...	...	...	...	...	...	...	...	0	1	5 1/2
do do (1 ton lots)	...	...	...	...	...	...	...	...	...	...	...	...	0	1	5
Nickel.															
92-99 per cent. guarantee	...	...	...	...	...	...	...	...	...	0	1	2	0	1	8



# "THE MINING JOURNAL" SHARE LIST.

ABBREVIATIONS AND REFERENCES.—The following are the significations of the abbreviations and references which occur in the Share List:—A, Antimony; Ar, Arsenic; B, Blende; Br, Borax; C, Copper; D, Diamond; G, Gold; I, Iron; L, Lead; M, Manganese; N, Nitrate; P, Phosphate; Q, Quicksilver; R, Ruby; S, Silver; Sd, Silver-lead; Sul, Sulphur; T, Tin; and Z, Zinc. \* In the "Amount of Share" column of British Mines signifies that the mine is conducted on "Cost Book" principles; † in the "Head Office" column of African Mines signifies that the address given is not that of the head office, but of a sub, or transfer office; and ‡, following the names of African Mines, signifies that they are subject to the Limited Liability Law of the South African Republic.

The following is by far the most complete and comprehensive list of mines, in whose shares business is being currently transacted, published. Additions will be made from time to time as occasion requires. Every effort is made to ensure accuracy, and Secretaries of Companies, Share Dealers, and our readers generally, are cordially invited to co-operate with us to this end, by notifying us of any errors that may at any time occur. We desire it to be understood that, while our Share List will almost invariably be found correct, we do not hold ourselves responsible for any loss or inconvenience that may arise from possible inaccuracies.

## AFRICAN MINES.

Name.	Closing Price, Feb. 28, 1896.	Closing Price, Feb. 21, 1896.	Am't. of Share	When last X'd and Dividend.	Called up Per Share.	Amount of Stock or No. of Shares Issued.	Situation of Mine.	Head Office.
Abbott's Con. Reefs	1 3/4	1 3/4	1 0	—	1 0 0	—	De Kaap	Broad Street Avenue
Alders Consolidated	1 1/4	1 1/4	1 0	—	1 0 0	250,000	"	1, Moorgate place.
African Estates	2 1/4	2 1/4	1 0	2 1/2 rts Oct. 16 '95	1 0 0	438,000	"	3, Cophall-buildings
Gold Reviv.	1 1/4	1 1/4	1 0	—	1 0 0	175,000	"	23, College Hill.
Africana	3 1/4	3 1/4	1 0	—	1 0 0	1,075,000	"	34, Clement's lane
Atrikander	1 1/4	1 1/4	1 0	—	1 0 0	40,000	Transvaal.	33, College Hill
Alexandra Estate	2 1/4	2 1/4	1 0	—	1 0 0	225,000	Rand	15, George street
Anglo-French Exp.	4 1/4	4 1/4	5 0	15 1/2 Aug. 29 '95	5 0 0	31,300	S. Africa	2, Princes street
Matabeleland	2 1/4	2 1/4	1 0	—	1 0 0	39,750	Mafabid.	Winchester House.
Apparatus	1 1/4	1 1/4	1 0	—	1 0 0	77,885	West Coast	Dashwood House.
Aurora	1 1/4	1 1/4	1 0	5 1/2 Mar. '93	1 0 0	65,000	Rand	8, Old Jewry.
West United	1 1/4	1 1/4	1 0	—	1 0 0	100,000	"	7, Lothbury
Austral-African	1 1/4	1 1/4	1 0	3/- Dec. 16 '95	1 0 0	250,000	"	7, Lothbury
Baile's Estate	3/6 4/-	3/6 4/3	10/-	1/ Feb. 13, '96	0 10 0	520,000	Transvaal.	85, Gracechurch-st.
Bantjes Consol.	3/6 7/3	3/6 7/3	10/-	—	0 10 0	520,000	"	"
Barnato Bank	3/6 7/3	3/6 7/3	1 0	—	1 0 0	83,000	"	15, Geo. St., Mn Ho.
Barnato Consol.	1 1/2	1 1/2	1 0	—	1 0 0	2,250,000	"	7, Lothbury
Barrick	13 1/2	13 1/2	1 0	—	1 0 0	1,000,000	"	"
Bechuana Exp.	13 1/2	13 1/2	1 0	—	0 9 0	407,495	De Kaap	17, Basinghall-street
Ben Provo	2 1/4	2 1/4	1 0	—	1 0 0	490,000	Bechuana.	12, St. Swithin's-lane
Big Golden Quarry	1 1/4	1 1/4	1 0	—	1 0 0	100,000	"	72, Basinghall street
Block "B" Lang.	2 1/4	2 1/4	1 0	—	—	—	—	2, Austin Friars.
Bonanza	2 1/4	2 1/4	1 0	—	0 5 0	483,228	Kaap Rivr	Warford Court
Brit. S. A. Char.	3 1/4	3 1/4	1 0	—	1 0 0	535,000	Rand	6, Prince-st., E.C.
Buffelsdorp	3 1/4	3 1/4	1 0	—	1 0 0	2,000	Turffont.	120, Bishopgate-st.
Central	3 1/4	3 1/4	1 0	—	1 0 0	999,750	S. Africa	15, St. Swithin's-lane
Consolidated	13 1/2	13 1/2	1 0	—	1 0 0	250,000	Potchefst.	7, Lothbury
Cape Asbestos	2 1/4	2 1/4	1 0	—	1 0 0	50,311	Orange Riv.	13, St. Swithin's-lane
Copper	2 1/4	2 1/4	2 0	2/6 Dec. 16, '95	2 0 0	300,000	Cape Col.	9, Queen-street-place.
Cassell Consol.	10 1/2	10 1/2	1 0	—	1 0 0	75,000	Johanb.	99, Cannon-street.
Cent. de Kaap	1 1/4	1 1/4	5/-	—	0 2 0	—	De Kaap	Palmerston Bldgs
Champ d'Or	2 1/4	2 1/4	1 0	—	1 0 0	240,000	"	120, Bishopgate st.
Charterland G.F.	1 1/4	1 1/4	1 0	3/2 Feb. 27 '96	1 0 0	116,018	Rand	8, Old Jewry, E.C.
Chimes West	1 1/4	1 1/4	1 0	—	1 0 0	150,000	"	15, St. Swithin's-lane
City and Sub. N.W.G.	4 1/2	4 1/2	4 0	10/- June '95	4 0 0	340,000	Rand	Winchester Ho.
Con. Buffelsdorp	32/- 33/-	32/- 33/-	1 0	30, Jan. 16 '96	1 0 0	721,500	Grigulid W	Gresham Ho.
Con. Deep Levels	5 1/4	5 1/4	1 0	4/- July 11 '95	1 0 0	187,350	Transvaal	62, Lombard-st.
Con. G. Fields A.	13 1/2	13 1/2	1 0	20/- Nov. 11 '95	1 0 0	120,000	S. Africa	30, St. Swithin's-lane
Do. S. Pref.	24/6 25/6	24/6 25/6	5 0	7 1/2 Dec. 30 '95	1 0 0	1,249,999	"	8, Old Jewry.
Do. S. Z. Deben.	110 111	109 110	5 0	5 1/2 Jan. 2 '96	5 0 0	50,000	"	"
Crown Deep	10 11	9 1/2 10 1/2	1 0	—	1 0 0	250,000	Rand	120, Bishopgate-st.
De Kaap	10 1/2	10 1/2	1 0	10/- Jan. 16 '96	1 0 0	123,000	"	"
De Kaap Consol.	24 1/2	24 1/2	5 0	15/- Jan. 16 '96	5 0 0	789,791	Kimberly	62, Lombard-street.
Do. S. Pref.	110 111	109 110	—	5 1/2 Jan. 2 '96	—	23,500,000	"	"
Do. S. Z. Bul. Ob.	105 106	104 1/2 105 1/2	—	5 1/2 Oct. '95	—	720,000	"	"
Doornkop	6/3 6/9	6/3 6/9	1 0	—	1 0 0	250,300	Doornkop	Warford Court
Driefontein	1 1/4	1 1/4	1 0	—	1 0 0	175,000	"	Winchester H.
Durban Deep	6 1/2	6 1/2	1 0	3/- Dec. 16 '95	1 0 0	425,000	Rand	25, Leadenhall-bldgs
East Orion	1 1/4	1 1/4	1 0	—	1 0 0	240,000	Klerksdorp	52, Leadenhall Street
East Orion	1 1/4	1 1/4	1 0	—	1 0 0	275,000	Rand	8, Old Jewry.
East Orion	6 1/2	6 1/2	1 0	—	1 0 0	571,000	"	170, Winchester-ho.
Evelyn	1 1/4	1 1/4	1 0	10 1/2 Jan. '96	1 0 0	66,000	"	28, Old Jewry, E.C.
Exploration	3 1/4	3 1/4	1 0	1/- Dec. 28 '94	1 0 0	146,000	S. Africa	30, St. Swithin's-lane
Exploring L & M.	1 1/4	1 1/4	1 0	2/- Dec. 16, '95	1 0 0	219,215	"	13, " "
Ferreira	17 18	17 1/2 18 1/2	1 0	13/- July 26 '95	1 0 0	45,000	Rand	120, Bishopgate st.
Forbes Reef (N.W.)	5 1/4	5 1/4	1 0	—	1 0 0	105,000	De Kaap	45-6, Leadenhall-st.
Goldenbulb Deep	6 1/2	6 1/2	1 0	—	1 0 0	265,000	Transvaal	30, St. Swithin's-lane
Goldenbulb Est. G	4 1/4	4 1/4	1 0	6/- July 26 '95	1 0 0	187,500	Rand	120, Bishopgate st.
Main Reef	1 1/4	1 1/4	1 0	2/- Feb. 13 '96	1 0 0	150,000	"	Warford Court, E.C.
George Goch	2 1/4	2 1/4	1 0	—	1 0 0	100,000	"	Johannesburg.
Glendora New	1 1/4	1 1/4	1 0	—	1 0 0	130,000	Driefont.	Warford Court, E.C.
Glendora	3 1/4	3 1/4	1 0	2/6 Feb. 13 '96	1 0 0	300,000	Rand	1, Drauers-gardens.
Id. P. S. Deep	10 1/2	10 1/2	1 0	—	1 0 0	600,000	S. Africa	8, Old Jewry.
G. F. of Lydenburg	3 1/4	3 1/4	1 0	—	1 0 0	200,000	Lydenburg	7, Lothbury.
G. F. of Mashonaland	3 1/4	3 1/4	1 0	—	1 0 0	200,000	Mashon.	19, St. Swithin's-lane
Grasop	6 1/2	6 1/2	1 0	2 1/2 Mar. '92	0 5 0	400,000	Lydenburg	2, Tokenhouse Bldgs
Grigulid W.	8 1/2	8 1/2	10 0	9/- Jan. 16, '96	10 0 0	105,700	Transvaal	62, Lombard-street
Heldeibg. Est. Est.	1 1/4	1 1/4	1 0	—	—	—	Heldeibg.	32, St. Helen's.
Gold	1 1/4	1 1/4	1 0	—	1 0 0	500,000	"	85, Gracechurch st.
Henderson's Trans	2 1/4	2 1/4	1 0	—	1 0 0	250,000	Zoutpanb.	Warford-court.
Henry Nourse	6 1/4	6 1/4	1 0	—	1 0 0	100,000	De Kaap	56, Bishopgate st.
Hetty	1 1/4	1 1/4	1 0	—	1 0 0	110,000	Middlevel.	21, Mining Lane.
Joe's Reef	3 1/4	3 1/4	1 0	—	1 0 0	57,404	"	"
Johannesburg Invest	3 1/4	3 1/4	1 0	20 1/2 Oct. '95	1 0 0	650,000	"	7, Lothbury.
Pioneer	3 1/4	3 1/4	1 0	12 1/2 Aug. '93	1 0 0	21,000	Rand	Johannesburg.
Jubilee	3 1/4	3 1/4	1 0	6/- Jan. 26 '96	1 0 0	100,000	"	8, Old Jewry.
Jumpers	3 1/4	3 1/4	1 0	25 1/2 Aug. 29 '95	1 0 0	100,000	"	120, Bishopgate st.
Deep	3 1/4	3 1/4	1 0	—	1 0 0	300,000	"	30, St. Swithin's-lane
Kimberley	1 1/4	1 1/4	1 0	2/- Jan. 16, '96	0 10 0	98,672	Kimberley	19, Finsbury circus.
Klerksdorp	15/9 16/3	15/9 16/3	10/-	—	1 0 0	125,000	"	2, Drapers-gardens.
Knights' Deep	2 1/4	2 1/4	1 0	—	1 0 0	400,000	Klerksdorp	110, Cannon St.
Kroonfontein	1 1/4	1 1/4	1 0	—	1 0 0	295,194	Rand	8, Old Jewry
Langlaagte	1 1/4	1 1/4	1 0	—	1 0 0	125,000	Jacobadai	6, St. Helen's.
Langlaagte Est. G	1 1/4	1 1/4	1 0	—	1 0 0	226,500	Langlaagte	120, Bishopgate st.
Royal	2 1/4	2 1/4	1 0	35 1/2 Jan. '95	1 0 0	470,000	Rand	50, Holborn Viaduct
Star	2 1/4	2 1/4	1 0	—	1 0 0	100,000	"	2, Drapers-gardens.
Liabon-Berlyn	7/ 7/6	7/ 7/5	2/6	—	0 2 0	883,233	Lydenburg	Suffolk House,
Lon. Paris Fin & M.	1 1/4	1 1/4	1 0	—	1 0 0	500,000	"	53, Old Broad Street.
London & S. A. Ex.	1 1/4	1 1/4	10/-	4/- Dec. 30 '95	0 10 0	100,000	S. Africa	19, Finsbury-circus.
Lydenburg Viol Est.	1 1/4	1 1/4	1 0	6 1/2 Mar. '90	1 0 0	319,933	Rand	Warford-court.
Lydenburg Estate	1 1/4	1 1/4	1 0	—	1 0 0	190,000	Lydenburg	85, Gracech. Street
Li & Expi	1 1/4	1 1/4	1 0	—	1 0 0	230,000	"	120, Bishopgate St.
M. G. Est.	6 1/2	6 1/2	1 0	—	1 0 0	300,000	"	"
Main Reef (New)	1 1/4	1 1/4	1 0	—	1 0 0	111,500	Rand	15, George St., Mn H
Maimai Gold Syn	2 1/4	2 1/4	2 0	—	0 2 0	300,000	Transvaal	Throgmorton House
Marie Louise	2 1/4	2 1/4	1 0	—	1 0 0	100,000	Rand	15, George St., Mn H
Marielva Nigel	2 1/4	2 1/4	1 0	—	1 0 0	100,000	"	"
Mashon. Agency	2 1/4	2 1/4	1 0	—	1 0 0	100,000	Mashonai	8, Old Jewry, E.C.
Central	1 1/4	1 1/4	1 0	—	1 0 0	110,000	"	"
Matabele's G. RY	4 1/4	4 1/4	1 0	—	1 0 0	110,000	Matabele's	3, Cophall-buildings
May Con. (New)	3 1/4	3 1/4	1 0	—	1 0 0	336,500	Rand	4, Lothbury.
Mayer & Charl.	5 1/4	5 1/4	1 0	—	1 0 0	75,000	"	1, Crosby square.
Minerva	1 1/4	1 1/4	1 0	—	1 0 0	100,000	"	Winchester House.
Mine Selection	1 1/4	1 1/4	1 0	—	1 0 0	100,000	"	15, George Street
Modderfontein	1 1/4	1 1/4	1 0	—	1 0 0	80,000	Rand	2, Austin Friars
"B" Extens.	2 1/4	2 1/4	1 0	—	1 0 0	229,000	Modderfont	125, Bishopgate st
Molynse Consol.	1 1/4	1 1/4	1 0	—	1 0 0	229,000	"	"
Moodies G. & E.	1 1/4	1 1/4	1 0	—	1 0 0	240,000	"	Gresham House
Mozambique	1 1/4	1 1/4	1 0	—	1 0 0	400,000	S. E. Africa	13, Austin Friars.
Namaqua	1 1/4	1 1/4	2 0	2/6 July '91	2 0 0	94,351	Namaquaal	24, Leadenhall-bld.
New African	4 1/4	4 1/4	1 0	20/- Dec. 30 '95	1 0 0	100,000	"	83, Nation Garden.
Chimies	2 1/4	2 1/4	1 0	10 1/2 Aug. '95	1 0 0	100,000	Rand	8, Old Jewry, E.C.
Clewer Estate	2 1/4	2 1/4	1 0	10 1/2 Feb. 28 '96	1 0 0	100,000	Lydenburg	120, Bishopgate st.
Comet	2 1/4	2 1/4	1 0	—	1 0 0	175,000	Heldeibg	Winchester-house.
Cronus	1 1/4	1 1/4	1 0	—	1 0 0	350,000	Langlaagte	120, Bishopgate st.
Gordon	9/ 9/8	7/ 8/	2 0	5 1/2 Dec. '95	2 0 0	464,344	Grigulid W	110, Cannon-street.
Heriot	0 9/4	0 9/4	1 0	—	1 0 0	88,750	Rand	98, Gresham Ho
Jager's	10 1/2	10 1/2	5 0	0/ Feb. 13, '96	5 0 0	100,000	Transvaal	5, Cophall-buildings
Kleinfontein	3 1/4	3 1/4	1 0	2 1/2 Mar. '95	3 1/2	81,500	Rand	



AUSTRALIAN AND NEW ZEALAND MINES—(Continued).

Name	Closing Price, Feb. 22, 1896	Closing Price, Feb. 21, 1896	Am't. of Share	When last X'd and Dividend	Called up Per Share.	Amount of Stock or No. of Shares Issued	Situation of Mine.	Head Office
W. A. General.....	4 1/2	4 1/2	pm	1 0	—	0 14 0	W. Austr	28, St. Swin's-lane,
" Australian G.F.	6 7/8	7	pm	1 0	4/- Dec. 16 '95	1 0 0	Coolgardie	28-29,
" Mines Del.	2 1/2	2 1/2	pm	1 0	10/ Oct. 30, '95	1 0 0	W. Austral	3, Princess Street
" Aust. Mining	9/6	10 1/4	pm	1 0	1/5 Oct. 18 '95	0 5 0	"	139, Winchester Ho,
" Aust. Pioneer	1 1/2	1 1/2	pm	1 0	—	0 15 0	"	139, Cannon-street,
" Share Corp.	1 1/2	1 1/2	pm	1 0	—	0 5 0	"	28, St. Swin's-lane
" Trust	3 1/2	3 1/2	pm	1 0	—	1 0 0	"	54, Old Broad Street
" Venture	2 1/2	3 pm	pm	1 0	15/ Oct. 30 '95	1 0 0	"	3, Princess Street.
West Boulder.....	11 1/2	12 1/2	pm	1 0	—	1 0 0	"	"
Westralia.....	15 1/2	15 1/2	pm	1 0	—	1 0 0	"	Winchester House,
White Feather.....	2 1/2	2 1/2	pm	1 0	—	1 0 0	Coolgardie	28 & 29, St. Swin's-lane
" United	3 1/2	3 1/2	pm	1 0	—	0 5 0	"	139, Cannon-street
Whitehead's	1 1/2	1 1/2	pm	1 0	—	0 5 0	"	13, Abchurch-lane.
Zapopan.....	5/9	5/9	pm	1 0	—	1 0 0	NW Austral	27, Bishopgate-street
Zeehan Montana S	5/9	5/9	pm	1 0	-4 Dec. '95	1 0 0	Tasmania	11, Queen Victoria st
" "	—	—	—	1 0	2 1/2 Dec. '95	0 2 6	"	"

NORTH AMERICAN MINES.								
Alaska Mexican.....G	1 1/2	1 1/2	pm	1 0	4-5 Feb. Feb. '96	0 5	Alaska.....	38, St. Swin's-lane
" Treadwell G	5 1/2	5 1/2	pm	1 0	1/6 Dec 24, '95	0 25	"	"
Anglo Mexican.....G	3 1/2	3 1/2	pm	5 0	2/- Dec. 30 '95	5 0 0	"	23, College Hill.
Arizona (Prof.) Cu	47/6	47/9	pm	4 0	1/6 Feb. 13 '96	0 0	Arizona.....	74, Geo.-st., Edinboro
" 6 1/2 A Deben.	108	108	pm	100 0	1/2 Oct. 30 '95	100 0	"	"
" 7 1/2 B Deben.	96	96 1/2	pm	100 0	1/2 Oct. 30 '95	100 0	"	"
De Lamar.....GS	16/6	17/8	pm	1 0	1/- Feb. 15 '96	1 0 0	Idaho.....	6, Drapers-gardens.
Dickens Custer GS	1/6	2/-	pm	1 0	—	0 19 9	"	Winchester Ho. E.C.
Doric.....G	5/-	5/8	pm	5/	—	0 5 0	Colorado..	"
Elkhorn Priority S	par	1/4 pm	pm	1 0	-3 June 26 '96	0 10 0	Montana	6, Draper's-gardens.
Gen. M'g. Assoc. ...	6 1/2	7 1/2	pm	5 10	14/- Apr. '95	5 10 0	C. Breton	Blomfield House,
Golden Feather.....G	10/6	11/8	pm	1 0	—	0 10 0	California	8, Stephens' Co E.C.
" Gate.....G	2/6	3/8	pm	1 0	—	0 19 6	"	"
" Leaf.....G	1/-	1/8	pm	1 0	—	1 0 0	Montana	8, Draper's Gardens.
Harquahala..... G	7/3	7/9	pm	1 0	-6 Nov. 11, '94	1 0 0	Arizona ..	6, Draper's Gardens.
Holcomb Valley G	1/3	1/9	pm	5/	—	0 5 0	California	14, Cornhill, E.C.
Jackson Goldfields	1/9	1/3	pm	5 0	—	0 5 0	"	11, Poultry, E.C.
Jay Hawk (New) G	-3/	1/9	pm	1 0	-1/6 Dec. '92	0 19 3	Montana	Dashwood House,
La Plata.....S	1/	1/8	pm	5/	1/3 Oct. '82	0 4 8	Colorado	11, Poultry, E.C.
La Yasca.....GS	5/-	5/	pm	1 0	—	0 19 6	Mexico ..	20, Bucklebury, E.C.
Lyonnais Mexican	1	1 1/2	pm	1 0	—	1 0 0	"	3, Broad St. Bldgs.
Montana..... GS	7/6	8/8	pm	1 0	-3 Dec. 30, '95	0 19 0	Montana	Gresham House, E.C.
New Guston.....S	3/4	3/4	pm	1 0	1/- Oct. '92	1 0 0	Colorado	25A, Old Broad-st.
Palmarejo.....GS	2/6	3/	pm	1 0	—	1 0 0	Mexico ..	32, Old Jewry, E.C.
Minosaltos(D)GS	3/4	3/4	pm	1 0	-1/6 Mar. '90	1 0 0	"	110, Cannon-street.
Richmond...GSL	3/4	1	pm	5 0	1/- Dec. 16 '95	5 0 0	Nevada ..	44, Coleman-street.
St. George.....G	1/	2/	pm	5/	—	0 4 9	G'orgia USA	8, Geo Ho., E'cheap
Sierra Buttes.....G	3/4	3/4	pm	2 0	-1/6 Oct. 30 '95	2 0 0	CALIFORNIA	139, Leadenhall-st.
" Plumas Eur. G	3/4	3/4	pm	2 0	-1/6 Oct. 30 '95	2 0 0	"	"
Springdale.....G	1/-	1/8	pm	0 1	-2 Sep. 28, '9	0 1	Colorado	20, Abchurch Lane.
Twin Lake Placers	1	1 1/2	pm	0	3/- Feb. '95	1 0 0	"	5, Lawrence P. H. B

SOUTH AND CENTRAL AMERICAN MINES.								
Anglo-Chilian PIN	9 1/2	9 1/2	pm	10 0	7/0 Feb. 27 '96	10 0 0	Antofagat.	123, Bishopsg.-st. W.
" 6 1/2 Rylst MB	105	108	pm	100 0	8 1/2 Jan. 2 '96	100 0 0	S. Luis ..	3 & 5, Queen Street,
Argen. Concessions	2/	2/	pm	2/	—	0 2 0	"	"
Caratal.....G	1/9	1/3	pm	2/8	—	0 2 0	Venezuela	37, Moorgate-st. E.C.
Cayulima.....S	-1/6	1/3	pm	5/	1/- Apr. '94	0 4 0	Peru ..	52, Leadenhall street
Colson.....G	1 1/2	1 1/2	pm	5 0	2/6 Dec. 16 '95	5 0 0	Columbia	5, Cophthal-bldgs., E.C.
Colorado Nit.....N	1 1/2	1 1/2	pm	20 0	10 frs. Aug. '94	20 0 0	Chili ..	12, King-st., Liverp'
Colombia.....G	2 1/2	2 1/2	pm	1 0	1/7 Jan. 28 '95	1 0 0	Venezuela	Ciudad Bolivar.
Colombian Hy.....G	3 1/2	3 1/2	pm	1 0	2/6 Dec. 16 '95	2 0 0	Columbia	10, Blomfield-street
Copiano.....C	2 1/2	2 1/2	pm	1 0	—	2 0 0	Chili ..	Dashwood House, E.C.
Darien "A".....G	5 1/2	6	pm	1 0	—	1 0 0	Colombia	Manchester.
" "B".....G	8 1/2	8 1/2	pm	1 0	—	1 0 0	"	"
Don Pedro.....G	9	9 1/3	pm	1 0	—	1 0 0	Brazil ..	24-5, Devonsh. Ch E.C.
El Callao.....G	3 1/2	3 1/2	pm	5 0	9 1/2 Feb. '94	5 0 0	Venezuela	8, Bishopsgt.-st. Wn
Frontino & B.....G	1 1/2	1 1/2	pm	1 0	6d. Jan. 16 '96	1 0 0	Colombia	184, Gresham House
Glenrock.....G	1/9	2/3	pm	1 0	—	1 0 0	Arg. (& L.)	3-5, Queen-street, E.C.
Gravel.....G	2/8	3/8	pm	1 0	—	1 0 0	Colombia	10, Blomfield-street
Guadalupe.....GS	3/6	5/-	pm	1 0	—	1 0 0	Honduras	14, Union st. Old Bld
Julia Taital.....N	3 1/2	3 1/2	pm	1 0	—	1 0 0	Nicaragua	139, Cannon-street.
Lagunas.....N	3 1/2	3 1/2	pm	5 0	15 p.c. Dec. '94	5 0 0	Tarapaca	3, Gracechurch st;
Lautaro.....N	6	6 1/2	pm	5 0	5/- Dec. 30 '95	5 0 0	Chili ..	70,
Liverpool.....N	8 1/2	8 1/2	pm	5 0	15/- Dec. 16, '95	5 0 0	"	Liverpool.
Loma.....N	-1/6	1/8	pm	1 0	—	1 0 0	Colombia	5, Cophthal-building
London Nit.....N	1 1/2	1 1/2	pm	3 0	3/4 Nov. '85	3 0 0	Chili ..	9, Gracechurch-st.
" Nit.(Prof.).....N	3 1/2	3 1/2	pm	5 0	8 1/2 Nov. 28 '95	5 0 0	"	"
Macate.....N	1/9	2/3	pm	2/	—	0 2 0	Peru ..	11, Old Broad-st. E.C.
New Tamarugal.....N	3 1/2	3 1/2	pm	1 10	1 s. Dec. '94	1 10 0	Tarapaca	50, Lime-street, E.C.
" 8 1/2 Com Prof	3 1/2	3 1/2	pm	1 10	8 p.c. Feb. '95	1 10 0	"	"
" 6 p.c. Debs ...	78	82	pm	100 0	6 p.c. Feb. '96	100 0 0	"	"
Orita.....G	1/3	1/9	pm	1 0	1/- April '96	1 0 0	Colombia	10, Blomfield-street
Oro Preto.....G	1/3	1/9	pm	1 0	1/- Feb. '96	1 0 0	Brazil ....	8, Queen-street-place
Pac. & Jaspampa N	1 1/2	1 1/2	pm	5 0	4/- May, '95	5 0 0	Tarapaca	3, Gracechurch-st.
Phoenix.....G	-1/3	1/-	pm	10/-	—	0 8 0	S. Luis ..	2 & 5, Queen Street.
Primitiva.....N	—	—	pm	5 0	20 1/2 Oct., '92	5 0 0	Chili ..	Liverpool.
Quebrada.....C	3 1/2	3 1/2	pm	3 0	5 1/2 Mar. '92	3 0 0	Venezuela	38, Nicholas Lane.
Mosario.....N	5 1/2	5 1/2	pm	5 0	5/- Feb. 13 '96	5 0 0	Chili ..	57 1/2, Old Broad-stree
" Hur'Db Scrp	104	107	pm	100 0	5 1/2 Oct. 1 '96	100 0 0	"	"
" St. John del Rey G	103	105	pm	100 0	5 1/2 Jan. 2 '96	100 0 0	"	"
" San Donato.....N	13 1/2	13 1/2	pm	5 0	10 frs. Nov 19 '95	5 0 0	Brazil ..	Finsby Ho., Blm'd st
" Jorge.....N	1 1/2	1 1/2	pm	5 0	2/6 May 24 '95	5 0 0	Chili ..	9, Gracechurch-st.
" Pablo.....N	5 1/2	5 1/2	pm	5 0	3/ Oct. 16 '95	5 0 0	"	"
" Sebastian.....N	2 1/2	2 1/2	pm	5 0	3/ Oct. 30 '95	5 0 0	"	"
" Santa Barbara.....G	1 1/2	1 1/2	pm	5 0	3/ May '95	5 0 0	"	"
" Elena.....N	3 1/2	3 1/2	pm	5 0	1/2 Dec., '95	5 0 0	"	"
" Rita.....N	3 1/2	3 1/2	pm	5 0	5/- Nov. 15 '94	5 0 0	"	"
" Segovia.....G	3 1/2	3 1/2	pm	5 0	16/ May 24 '95	5 0 0	"	"
"	—	—	pm	5/-	—	5 0 0	"	"
Tollma "A".....S	7	7 1/2	pm	5 0	10/- Jy 11, '95	5 0 0	"	18, Finsbury-circons.
" "B".....S	5 1/2	6 1/2	pm	5 0	10/- Jy 11, '95	5 0 0	"	"

INDIAN AND ASIATIC MINES.								
Bahaghat Mysore G	3/3	3/9	pm	1 0	—	0 19 0	India ..	6-7, Queen-street-pl
Burma Ruby.....R	13 1/2	13 1/2	pm	1 0	—	0 18 0	Burmab...	Surfolt House E C
Champion Reef.....G	6 1/2	6 1/2	pm	1 0	5/- Jan. 16 '96	1 0 0	India ..	6-7, Queen-street-pl
Opia Central.....G	1/-	1/6	pm	1 0	—	1 0 0	"	Dashwood House, E.C.
Opromandel.....G	1	1 1/2	pm	1 0	—	0 17 6	"	6-7, Queen-st.-place
Gold Fida Mysore G	22	23	pm	5/	2/- Feb. '96	1 0 0	"	6-7, Queen-street-pl
Kadur Mysore.....G	1 1/2	1 1/2	pm	5/	—	0 5 0	"	Copthall House, E.C.
Kempitote G & B	1 1/2	1 1/2	pm	5/	—	0 3 6	India ..	6-7, Queen-st.-place.
Mysore.....G	5 1/2	5 1/2	pm	1 0	2/8 Oct. 30 '95	1 0 0	"	8, Queen-street pl.
M. J. Harrell.....G	1/-	1/6	pm	1 0	—	0 18 0	"	1, East India Avenue
" Reefs.....G	8/-	9/	pm	1 0	—	0 10 0	"	6-7, Queen-street-pl
" West(N)G	1 1/2	1 1/2	pm	1 0	1/6 Jan. 16 '95	1 0 0	"	1, St. Winchester St.
" Wynaad G	1 1/2	1 1/2	pm	1 0	—	0 19 0	"	"
" Reefs.....G	8 1/2	8 1/2	pm	1 0	1/6 Nov 14 '95	1 0 0	"	6-7, Queen-street-pl.
" Sandvict G	3 1/2	3 1/2	pm	1 0	3/- Dec. 16 '95	1 0 0	"	"
Ooregram (D.) G	3 1/2	3 1/2	pm	1 0	3/- Dec. 16 '95	1 0 0	"	"
" (10 1/2 Prof.).....G	3 1/2	3 1/2	pm	1 0	—	0 5 0	"	"
" (10 1/2 Prof.).....G	3 1/2	3 1/2	pm	1 0	—	0 5 0	"	"
Panang Kabang T	3 1/2	3 1/2	pm	1 0	—	1 0 0	Malay Pn.	4a, Jeffrey's st. E.C.
Yerrakonda.....G	16	16	pm	4/	—	1 2 6	Mysore ..	6-7, Queen-street-pl



## LATEST FROM THE MINES.

## CABLEGRAMS AND TELEGRAMS.

**LADDIN'S LAMP GOLD.**—The following cablegram has been received from the superintendent at the mines:—"Four weeks' returns totals 966 ounces of gold (approximate value £3540)—namely, 272 tons of ore have been crushed, yielding 862 ounces, and 2 tons rich crude ore have been shipped containing 104 ounces."

**BAYLEY'S REWARD CLAIM.**—The following cable, dated the 21st inst., has been received:—"100 ounces from odd lots; blanketings by Berdan's."

**BAYLEY'S REWARD NO. 1 SOUTH.**—Cable dated the 21st inst.:—"72 ounces, 120 tons."

**BROKEN HILL PROPRIETARY.**—Cable received from Melbourne:—"£2 11s. buyers."

**BROKEN HILL PROPRIETARY.**—Cable received from Melbourne on Thursday:—"Dividend of 1s. per share declared, payable on the 18th March, the books for which will be made up on the morning of the 4th of that month."

**CARIBOO GOLD FIELDS.**—The following has been received from Barkerville:—"Work on drain tunnel proceeding rapidly. Clear of all water. Present rate of progress 7 feet each 24 hours. Still in heavy wash, which is very rich."

**CENTRAL CHILI COPPER (Panulillo).**—The directors have received from their manager at Panulillo by cable:—"Result of work for month of January: Mines produced 720 tons, ores bought 730 tons, ores smelted 1950 tons, regulus produced 237 tons. Net profit for the month £323. Owing to holidays very short time was made. Future prospects favourable."

**GILPIN GOLD.**—The secretary announces receipt on the 27th inst. of the following cablegram:—"Driving a crosscut to the north, 3rd level. Have struck a large body of ore in the crosscut. The width of the vein 6 feet, suitable for milling. The mine continues to improve. Developments opening up ore bodies all levels. Shall commence crushing ore early next month."

**DARIEN.**—The following cablegram has been received from the manager:—"Crushed 485 tons, obtained 477 ounces of gold."

**DAY DAWN BLOCK AND WYNDHAM.**—Cablegram from the general manager at Charters Towers giving the result of the crushing for the fortnight ending the 22nd inst.:—"Tons crushed, 993; yield of gold, 1106 ounces; approximate value, £3815; fortnight's expenses, £1800."

**GOURLAY'S RHODESIA DEVELOPMENT.**—Cablegrams have been recently received from the managing director as follows:—"Struck reef 40 feet lower. Shannon block, lower Gwels district, 2 feet wide, assays 28 dwts. Thames reefs also looking exceedingly well," and "Claims on Golden Egg 2 feet wide, 57 feet level. Samples have assayed as follows:—28 dwts. Claims on Eclipse reef, 3 feet 6 inches wide, 51 feet level. Samples have assayed as follows:—26 dwts."

**GRAVEL GOLD.**—The directors have received the following cablegram from their superintendent:—"We have cleaned up \$2500 after washing 1100 hours. Our water supply has been reduced to 500 inches during this run."

**HANNAN'S NAPIER.**—The following cablegram (delayed in transmission) has been received:—"Kalgoorlie, February 20. North crosscut has been driven 25 feet. Large ore body."

**HARRIETVILLE.**—The directors have received the following telegram, dated February 22, from the mine:—"Have struck pay ore; tunnel F assaying 15 dwts. per ton."

**HAWK'S VIEW.**—A cablegram dated February 28 advises that work is proceeding steadily. The Chairman, Mr. L. Campbell-Johnston, has left for Australia, and will visit the company's mines at Kalgoorlie before returning to this country.

**KABOONGA.**—Cable:—"Second machine, 2 ounces; third, 3 ounces. The general indications are favourable. Wash shows considerable signs of improving; shall start immediately to increase the output."

**LA YESCA.**—The manager reports by cable:—"55 tons crushed 1200 ounces; 65 per cent. extraction."

**LIMERICK.**—The following has been received from Captain Rodda, the company's manager at the mine:—"It is with much pleasure that I advise you of extraordinary developments in the main shaft on lease 1473 (Lost Chord). The prospects improved at the 52 feet depth (to which point the average value is over 4 ounces) to the present bottom, 56 feet, which shows an average value of 7 ounces 5 dwts. per ton bulk. The reef in the bottom varies from 20 inches to 30 inches wide, and is equally as rich at the lowest point."

**MOANATAIRI GOLD.**—The company has received the following cable message from the mine:—"Auckland, New Zealand.—50 lbs. weight specimen from the Reuben Parr reef. The stone above east on the 100 feet level, gold showing in the stone."

**MENZIES' MINING AND EXPLORATION.**—Cable dated February 18 states:—"The greater part of the machinery for the mines at Menzies and in the I. O. U. district has arrived at Freemantle, and is being brought up to the mines where it will be erected immediately; it includes, in addition to the ordinary plant which is complete in itself, an electro-cyanide plant, the first of its kind in Western Australia, which it is claimed will extract over 99 per cent. of the total gold in the ore rapidly and cheaply."

**MENZIES CONSOLIDATED.**—The following cable information is to hand from Mr. John Reid, the local director at Coolgardie:—"Princess May claim. Shaft struck a very rich body of ore at a depth of 124 feet. The width is 18 inches. The value per ton is 6 ounces."

**MOODIE'S FORTUNA.**—Cable from the board in Johannesburg:—"Mill started; see our letters; Hamilton (director) sailing Norman; manager's latest report highly favourable; quotation obtained local exchange."

**MOSMAN.**—Cablegram from Charters Towers:—"Have crushed as follows:—From North Australian shaft 87 tons for 116 ounces; from Peabody shaft 110 tons for 136 ounces; from Wyndham shaft 166 tons for 335 ounces. The reef in the 1600 feet level Wyndham shaft is 18 inches thick; will ship the bullion 587 ounces per s.s. *Junna*. The approximate value of this return, 363 tons for 587 ounces of gold, is £2050."

**MYALL'S UNITED.**—The following cablegrams have been received from consulting engineer in Sydney:—"Have returned from Myall. Mine is looking well. 500 tons on the surface. The mill will be ready to start as soon as the rains set in. New shaft 100 feet.—February 20." From Mr. N. M. Cohen, one of the directors at present in Sydney:—"Have just returned. Developments opening up splendidly. 500 tons at grass, very rich in gold. Our next clean up will be about near the end of March. We have been very short of water during the summer."

**NEW HUM.**—The following cable has been received from the company's mining manager in Bendigo, Mr. George Phillips:—"The shaft has been sunk 560 feet. Cutting spurs showing a little gold. The 553 feet level crosscut has been driven 20 feet showing payable gold. The 400 feet level crosscut has been driven 260 feet in payable gold."

**NEW KLEINFONTEIN.**—The Anglo-French Exploration Company (Limited), as London agents of the New Kleinfontein Company (Limited), have received the following information by cablegram from Johannesburg:—"The result of the crushing for the month of January was as follows:—From the mill, 1030 ounces; from the treatment of tailings, 296 ounces; making a total of 1326 ounces, as compared with last month, 2552 ounces. The number of tons developed was 4270 tons, as compared with December, 6550 tons. The time during which crushing was continued in January was 15 days."

**NEW QUEEN.**—The directors having cabled to the managers suggesting they should open out on the reef recently passed through in the deep shaft, they replied on 21st inst. by cable as follows:—"Have already begun making preparations in order to open up."

**ROSE HILL UNITED.**—Manager fully confirms Press Agency reports: New lode struck carrying fine gold; will send full report.—Mackerman.

**SAN MIGUEL.**—Cable advices received from the manager announce that the mine was drained to the 105 metre level on the 12th inst., and that progress has recently been somewhat slow in consequence of mud. As soon as the 130 metre level has been reached the mine will be entirely free from water, and the manager then expects to be at work almost immediately on the ruby silver (Rosicler) for which the mine is well known.

**ST. JOHN DEL REY.**—The following telegram has been received from Mr. Chalmers:—"Produce 9 days, 2nd division February, 9250 oitavas, equal to 106637 ounces troy; value, £3584; yield per ton, 57 oitavas, 85 ounce troy."

**SOUTH KALGOORLIE.**—The latest news from the South Kalgoorlie is that the main shaft is down 76 feet, 18 feet in harder rock. 65 feet from the surface passed through lode formation, average about 19 inches, assaying 32 dwts. per ton. No. 1 shaft, No. 1 lode, have discontinued driving. No. 1 crosscut has advanced 6 feet, crosscut 29 feet from the shaft. No. 6 shaft, No. 2 lode, depth of shaft 50 feet, have driven along lode 6 feet, assays 15 dwts. per ton. Have sunk a prospecting shaft, No. 7, 14 feet.

**WOODSTOCK (New Zealand).**—Cablegram from the mine manager of 27th inst.:—"Cut Maria reef in No. 4 level. Width 4 feet, assay value per ton £13."

## GOLD AND GOLD MINING.

THE third lecture of a series of popular lectures at the Durham School of Science was delivered on Tuesday last, by Professor HENRY LOUIS, on the above subject. The lecturer said he proposed to lay before his audience merely an outline of the method in which gold was obtained, with certain limitations. They were aware that gold occurred in nature in two ways—either in its primary deposits in hard solid rocks, when it is known as reef gold, or in secondary deposits, when it is called alluvial gold. The latter is a constituent of certain gravels. To extract the gold, all that is to be done is to wash away the lighter sand, clay, and pebbles, when the gold is left behind. Alluvial gold is easily and readily worked, and most of the alluvial deposits of the world are in a fair way of being exhausted, so that our principal supplies in the future must come, as at present, from reef gold. Before the discovery of America the world contained but little gold, and it is supposed that at that date there were only some 30,000,000 ounces of gold in the world. A table showing the world's annual production since 1500 showed that about this time the output became of more importance, and continued more or less steady, fluctuating merely with imports from America, until in recent times a sudden leap up was seen in 1850. This was due to the discovery of alluvial gold in California and Australia. As these deposits became exhausted the annual production fell again, until it took a rise again in 1891. This second rise is remarkable for many reasons. First, it was due to reef gold, and not to alluvial. Secondly, it was largely due to the production of the Witwatersrand district. As this district has made itself prominent in the output of gold, he proposed to limit himself mainly to the description of the production of gold in this mere speck of country. The lecturer then went on to explain that Witwatersrand is the Boer name of a range of low hills, abrupt and broken, on the north, where it forms a series of low hills. In the ravines on the north side there are many streams of water which come foaming down the steep cliffs, and have given the place its name. The lecturer then exhibited a view showing one of these, and it was specially interesting as being near to Krugersdorp, a place now made famous by the defeat of Dr. Jameson. Other views showed the first gold mill ever worked on the Witwatersrand. After giving a brief history of the Rand and his early experiences, the lecturer, by means of a section, gave a description of the geology of the country and the blanket formation. The reefs, he said, are mined in the ordinary way, very much, in some respects, as coal is mined in England. Shafts are sunk down to the reefs sometimes vertically and sometimes inclined. Professor Louis here exhibited photos. of the shaft-heads of a number of the more important mines, and went on to describe the method adopted for extracting the gold. The stamp mill, he remarked, is the universal machine used for this purpose, and merited detailed examination. This portion of the subject was illustrated by a beautiful working model of a 10 stamp mill, constructed by Messrs. Robay and Co., of Lincoln. This model, one quarter full size, in every respect an exact reproduction on a smaller scale of the original mill, was shown in actual operation crushing ore, which was fed into the battery box by the ingenious automatic feeders that form part of the machine. The mill was driven by an electric motor, the arrangement of which had been designed and kindly superintended by Professor Stroud. The lecturer traced the extraction of gold from ore by means of mercury, the formation and collection of amalgam, the retorting of the latter to form gold sponge, and the melting of gold into bars. This portion of the subject was also illustrated experimentally, the processes of retorting and melting being exhibited to the audience by being thrown upon the screen by means of a powerful arc lamp. The lecturer then turned to the method employed in obtaining the gold that escapes amalgamation in the stamp mill—viz., the cyanide process and concentration and chlorination, the details of all of which were fully described. The lecturer concluded with a few statistics, showing the importance of this modern gold industry and the influence which it was calculated to exert on the world in general. The experiments and practical demonstrations constituted a decided novelty, and may be looked upon as a new departure in popular lectures.

**JOHANNESBURG CONSOLIDATED INVESTMENT COMPANY (LIMITED).**—We are informed that Mr. Edmund Ecombe has tendered his resignation as managing director and as a member of the board of the Johannesburg Consolidated Investment Company (Limited) owing to ill-health, and it has been accepted with very much regret. Sir W. Lawrence Young, Bart., has been selected to fill his post.—Messrs. G. R. Raw and B. B. French, former directors of the late South African Trust and Finance Company, have also resigned their positions as directors of the above company.

## COMPANY FINANCE.

Reports, Balance Sheets, Dividends, &c., of Mining and other Companies.

## THE MONTANA MINING COMPANY (LIMITED).

REPORT OF THE DIRECTORS.

The directors have just published their report, with the statement of accounts and balance-sheet, for the half-year ending December 31, 1895. The revenue account shows a profit of £17,088 7s. 4d., of which £16,428 4s. was applied in payment of dividends on October 15, 1895, and January 15, 1896, leaving a net balance of £660 3s. 4d., which, with the sum of £6601 14s. 6d., brought from the previous half-year, gives a total of £6661 17s. 9d. to be carried forward to the next half-year. The expenditure during the half-year charged to capital account comprises: Legal expenses in connection with the lawsuit, £809 18s. 9d.; part purchase of an adjoining property, £70 12s. 10.; total, £880 11s. 7d. During the six months ending December 31 last, the mills reduced 37,790 tons of ore, which yielded in bullion-bars and concentrates (on assay coinage value) \$496,682, equivalent to \$13.14 per ton. The actual realised and realisable value of the ore amounted to \$381,401, the difference on the coinage value being \$115,281 or 2.33 per cent. on the gold, and 52.14 per cent. on the silver produced. The average net realised and realisable value of the ore treated was, therefore, \$10.09, say £2 1s. 8d. per ton. The proportionate money value of the precious metals contained in the ore was—gold 73.87, and silver 26.13 per cent. The comparative prices of silver in the United States at the last two half-yearly periods were as follows:—

	June 30, 1895.	Dec. 31, 1895.
Highest ..	67½	68½
Lowest ..	59½	65½
Average ..	63½	66½

Attached to the report will be found longitudinal sections of the underground workings on the New Castletown and Drumlunnon lodes, and also the usual tabulated statements showing the details of production and monthly and total working expenses for the half-year ending December 31, 1895. From the report of Mr. Alex. Burrell, it will be observed that "nothing new has transpired" during the past half-year with respect to the litigation in which the company has been involved.—The directors retiring by rotation are Rawlinson T. Bayliss and Frederick P. Crowther, who, being eligible, offer themselves for re-election.—Messrs. Jackson, Pixley, Browning, Huxey, and Co. offer themselves for re-election as auditors.

## BUSHMAN'S GOLD MINES OF WESTERN AUSTRALIA.

A circular to the shareholders states:—"You will be interested to learn that in consequence of Mr. C. W. Marsh having been engaged to report upon mining properties in Western Australia, and, therefore, unable in future to devote the whole of his time to the affairs of the company, the board have engaged the services of Mr. Percival Fowler, M.E. (son of Sir John Fowler, and a mining engineer of considerable experience), on very moderate terms, to superintend the development of the company's property. Mr. Fowler is now on his way out to take charge of the company's interests generally, and on his arrival will forthwith make an examination, and report on the company's property for the information of the board. Mr. C. W. Marsh, the present manager, writing under date January 4, states:—"I have also trimmed down and timbered (b) shaft, and have sunk it to 16 feet; the reef is about 2 feet average of fair grade stone that should pay well for treating."

## FRONTINO AND BOLIVIA GOLD MINING COMPANY.

The directors have received advices from the mines, dated December 29 and January 10. Also a letter from Messrs. Restrepo, dated January 13. The statement for the month of December is as follows:—4398 tons produced—bullion, 2695 ounces; tributaries' gold produced—bullion, 183 ounces; total, 2778 ounces; also 92,165 lbs. of sulphurets, valued at £432 13s. 9d.; estimated value of the gold and sulphurets, £7349 17s. 7d.; cost at the mines, Medellin, and in London, £6740 14s. 4d.; estimated excess of returns, £609 3s. 3d. The new mill at Salada went to work in November, and in 23 days crushed 813 tons of mineral which yielded 794 ounces of bullion. In December the mill worked 28 days, and crushed 806 tons, which yielded 988 ounces of bullion. The reason why the total returns of these two months have not been proportionately increased is that the returns from Silencio Mine were considerably reduced. It will be seen from the report of January 10 that Silencio is improving again.

## WAIHI GOLD MINING COMPANY.

The usual quarterly dividend at the rate of 2s. per share, free of income tax, will be paid on March 9 next, and the warrants for same will be posted on March 7. The transfer books will be closed from the 2nd to the 7th of March inclusive, for the preparation of the dividend warrants.

—The directors of the DAY DAWN BLOCK AND WYNDHAM GOLD MINING COMPANY (LIMITED) have declared an interim dividend of 6d. per share, free of income tax, payable March 11. Bullion consignments, advised by s.s. *Duke of Westminster* and *Junna*, 3772 ounces, valued at £13,175.

—A dividend of £25,000, being 6d. a share, for the month of February, is payable on March 2 on the shares of the MOUNT MORGAN GOLD MINING COMPANY (LIMITED).

—The NEW CHIMES GOLD MINING COMPANY (LIMITED) have declared a dividend of 5 per cent., payable to all shareholders registered on March 7. The transfer-books will be closed from March 7 to 20, both dates inclusive.

## DIARY.

## Monday, March 2.

Twin Lake Placers, Winchester House, 12.  
Kanya Exploration, Winchester House, 12.  
West Australian Development Corp., Cannon-st. Hotel, 3.

## Tuesday, March 3.

Montana Mining Company, Winchester House, 12.  
Barborton Reefs, Winchester House, 2.  
Marbella Iron Ore, 78, Queen Victoria Street, 2.  
Dickens Custer, Winchester House, 2.30.  
New Matrix Syndicate, Winchester House, 3.

## Wednesday, March 4.

West Kitty, 37, Walbrook, 12.

## Thursday, March 5.

Hauraki Gold, Winchester House, 1.

## Friday, March 6.

Rhodesia (Limited), Winchester House, 12.

Pardy's Mozambique Syndicate, Winchester House, 1.

## Saturday, March 7.

Landak Diamond Fields, Winchester House, 11.



## SIDE LIGHTS ON THE LAW:

Legal Jottings on Cases in the Courts, and on Questions affecting Mining, Railway, Financial, Industrial, and allied Interests.

BY A BARRISTER.

It is generally well understood that factors or mercantile agents in possession of goods or documents of title, with the consent of their owner, are able to make a good title to them, but as I have on previous occasions noticed the addition to this rule, made by the Factors' Act of 1889, is not generally understood. That rule is if you buy, or agree to buy, goods, and with the consent of the seller you obtain either possession of the goods, or the documents of title to them, you are enabled either by yourself or your mercantile agent to give by means of any sale, pledge, or other disposition thereof, or by an agreement for the same, a perfectly good title to any person who receives either the goods or documents of title from you in good faith and without notice that the original seller has any lien or other right in respect of them. A case before the Commercial Judge the other day clearly illustrates this. The matter was tried before him on an interpleader. Fox and Co., who had purchased some 12,000 bushels of wheat, which the contract of sale stated to be lying at the warehouse of James Warrimer, before paying for it became insolvent. Upon the sale the seller had sent a transfer note to the warehousemen, directing them to transfer the wheat to Fox and Co. All charges, except storage after a date named, were to be paid by Fox and Co. The warehousemen recorded the order in their books, and sent Fox and Co. an acknowledgment of the note. They, however, did not separate the 12,000 bushels from the bulk of other wheat which the sellers had stored there, but they issued to Fox and Co. three warrants stating they held the wheat for delivery to their order, and before becoming insolvent Fox and Co. pledged these warrants, with the Capital and Counties Bank against advances made. The sellers claimed a lien for the unpaid purchase-money upon this wheat, urging that it had never been separated from the bulk or otherwise appropriated to the sale. The Judge held, however, that the Factors' Act now placed that beyond doubt. Fox and Co. had agreed to buy, had obtained possession of the documents of title, with the consent of the seller, and the bank in good faith held as pledges the warrants, without notice of the sellers' lien.

The question as to the meaning of pirates has of late had special interest. We all know our friend the pirate 'bus, and most people would be happy to rid of him, although on occasions I have known him to have his advocates. After all, few are they who will not be grateful to Mr. Justice Chitty for having discovered that an action for deceit will lie at the hands of the rival omnibus, whose general character and get up the pirate 'bus has taken great pains to imitate. If you are in a hurry on a long omnibus route, and have hailed what you thought was your usual red omnibus, and have read thereon, "London General," it is irritating to suffer the unaccustomed stoppages and waits to gather customers, nor is your irritation allayed when on further inspection at the end of your journey you find with greater care you might have discovered the red omnibus was that of a rival trader, and the words you had read referred to "London General Post Office," the destination of the omnibus, and not the name of the company whose 'bus you generally patronised, and whose name you were accustomed to find painted at that spot. Mr. Justice Chitty, finding that persons who so trade are liable to an ordinary action as between rival traders where the defendant is alleged by the plaintiff to be passing off the defendant's goods as those of the plaintiff, because the general appearance and "get up" of the omnibus, as a whole, was the means of deceit, granted an injunction to restrain a company which passed off its omnibus with "Lothbury, General Post Office," for a London General omnibus one from carrying on its business in such a manner as was calculated to lead customers to mistake one omnibus for the other.

"Passion and prejudice should never, under any circumstances, be allowed to enter into the sanctuary of Justice," said the celebrated Chief Justice Sir Alexander Cockburn, in concluding his address to the Grand Jury at the Old Bailey, in the famous case of "The Queen against Nelson and Brand," who were indicted for murder for having tried a civilian by court martial in Jamaica. Had the thoughtless crowd of sympathising friends of Dr. Jameson, who assembled in the precincts of the Chief Magistrate of Bow-street, last Tuesday, to cheer him, had remembered the traditions of their country, they would have had less chance by their ill-advised actions of imperilling the fair trial of those Uitlanders, whose trial in the Transvaal now stands adjourned. It is only fair to remark there was some excuse for this thoughtless conduct. The Government, in its well-intentioned desire to avoid a demonstration, which might have the effect of producing unfortunate political results, had surrounded the approach of Dr. Jameson to London ever since the announcement of his arrival at Plymouth, with every possible air of mystery. Bow-street for two whole days was on the tip-toe of expectation. Long after the usual hour of adjournment on Tuesday the Chief Magistrate himself was detained there still expecting. For some reason or other the crowd had concluded that Jameson alone would have been brought before the civil tribunal, and that the other leaders of his expeditionary force being military men would have been relegated to trial by court martial. The sudden appearance, therefore, not only of Dr. Jameson, but of his comrades, was too much for the common sense of even the phlegmatic Briton. Sir John Bridge, when at last he could obtain a hearing, administered a lecture to his unruly audience, which, in the interests of justice, it is to be hoped will reach far beyond the walls of the police-court.

The crime with which the accused stand charged in the first instance is, as was foreshadowed in this column, would probably be the case, the offence of invading a friendly State. It does not follow that that is the final charge that will be preferred. As I anticipated, the Government found no difficulty in preferring that charge. It had its use in this, that it enabled them to make use of the other provisions of the Foreign Enlistment Act in removing the alleged offenders to this country for trial upon the ground that such removal would be conducive to the interests of justice.

Whatever may be the result of this trial, the preliminary proceedings of which have now commenced, and which I have no desire to anticipate, it is certain to bring out into prominence certain principles of English law which on occasions are unfortunately forgotten. One of these is that "the common law is the inheritance of all the subjects of the realm, and, therefore, in the plantations or elsewhere where colonies of English are settled they are to be governed by the laws of England. So if a foreign territory, not inhabited, be obtained by the Crown

of England, all laws of England bind there." Again, as Lord Ellenborough said, in a place occupied by the Queen's troops, the subjects of England would impliedly carry the law of England with them. So, further, "the common law of England is the common law of the plantations, and all statutes in the affirmation of the laws as passed in England, antecedent to the settlement of any colony, are in force in that colony, unless there is some private Act to the contrary, though no statutes made since these settlements are there in force, unless the colonies are particularly mentioned." In fact, it has well been summed up thus: "An Englishman, go where he will, carries as much of law and liberty with him as the nature of things will bear." The result of these principles is that if an Englishman kill a man in any part of the globe, whatever colour or nation that man may be of, he is guilty of homicide, and is liable when he again is in England to be tried for manslaughter or murder, and by a fiction of English common law practice the venue is in Middlesex, and the offence is alleged in the indictment to have taken place there.

## CORRESPONDENCE.

We wish it to be understood that we do not hold ourselves responsible for, and do not necessarily endorse, the opinions of correspondents. All communications must be accompanied by the names and addresses of the senders, though these need not necessarily be published.

## AERIAL ROPEWAYS.

TO THE EDITOR OF "THE MINING JOURNAL."

SIR,—I have read Mr. Commans' letter in your issue of the 16th, in which he claims a superiority for the double rope system of aerial ropeway.

I cannot admit that he is correct when he states that "the single rope system has in this country and on the Continent been almost entirely superseded by the Otto system, and that he doubts that if your reviewer can name 50 or even five single ropeways at work."

After some 25 years' experience in the designing and erection of aerial ropeways, I feel I can speak with some weight on this subject, and I have long ago arrived at the conclusion that no particular system of ropeway can be said to be the best. Each system has its advantages, and an experienced engineer will select the system suited to the individual case before him. Makers of one system make the mistake of advocating the universal adoption of their own system, the result of which is that failures frequently occur.

For many years past I have followed the course of selecting the system most suited to the situation or work specified, and for that reason I do not confine myself to one system, but can put forward no less than five different systems, each the most efficient according to the requirements of each situation as it arises.

Respecting Mr. Commans' remarks as to the difficulty of finding 50 single rope systems of ropeways of importance at work, I think there would be little difficulty in finding 500.—I remain, yours truly,

W. CARRINGTON.

London, February 19.

The LIST of APPLICATIONS will Close for Town and Country on Wednesday next, March 4, at 4 p.m.

A Dalsiel Cablegram, dated Perth, W.A., January 29, 1896, states: "Splendid specimens of stone from the 50 ft. and 105 ft. levels of the Lone Hand Mine, at the 25-Mile, have been brought into Coolgardie, creating a great sensation." The Directors do not include any waiver clauses in this Prospectus, and will not go to allotment unless a total subscription of £20,000 is forthcoming, of which £10,000 will be applied towards working capital.

## THE BIRD-IN-HAND GOLD COMPANY, LIMITED.

(Incorporated under the Joint Stock Companies' Acts.)

CAPITAL ... .. £20,000.

Divided into 8,000 Shares of £2 each, which are now offered for Public Subscription, payable as follows: 5s. per Share on application, 5s. per Share on allotment, 5s. on April 30, 5s. on June 30.

The sum of £40,000 is appropriated for Working Capital, and is included in the issue now offered for subscription.

## DIRECTORS.

T. Harrison-Davis, Esq. (Chairman), Managing Director West Australian Trust, Limited, Director Lady Loch Gold Mining Company (Limited), 51, Old Broad Street, E.C.  
Colonel A. Burton-Brown, R.A., F.G.S., Director Hannan's Find Gold Reefs, 15, Tabbot-road, Baywater, W.  
H. B. Marriott-Watson, Esq., Director of Hannan's South Brownhill Gold Mines (Limited), Heathfield Cottage, Chiswick, W.  
G. Hamilton Lloyd, Esq., A.M.I.C.E., M.I.M.M., 7, St. Mildred's-court, E.C.  
Alfred Romilly, Esq., Director Australasian Mining Company (Limited), 9, Lower Belgrave-street, S.W.

## BANKERS.

The City Bank (Limited), Threadneedle-street, E.C.

## SOLICITORS.

Messrs. Marshall and Marshall, 3 and 4, Lincoln's Inn Fields, London.

## BROKERS.

Messrs. Earlam Booth and Preston, 4, Copthall-chambers and 8, Cock Exchange, R. W. Elliston, Esq., 14, Dale-street, Liverpool, and Stock Exchange.

## AUDITORS.

Messrs. John F. Lovering and Co., Church-passage, Guildhall, London, E.C.

## SECRETARY AND OFFICES.

Percy H. Fowler, 1 and 2, Great Winchester-street, E.C.

## ABRIDGED PROSPECTUS.

This Company was registered at Somerset House on November 19, 1895; the objects being (inter alia) to acquire and work the gold mining lease No. 1627, known as the Bird-in-Hand Gold Mine, consisting of 15 acres or thereabouts, on the Lone Hand and True Blue lines of reef.

The position of the Bird-in-Hand Mine is exceptionally good. It is on the main line of lode at that prosperous mining district known as the "25-mile" in Coolgardie Gold Field, and is immediately adjoining the celebrated "Lone Hand" Mine, lying between it and the "Westralia"; carrying reefs which are locally distinguished as the "True Blue" and "Lone Hand" reefs. Among other mines which have brought the "25-Mile" district into prominence, may be mentioned Blacketts (Eureka), Royal Sovereign, Premier, and Brilliant on the same line of reefs, and the Kintore and City of London on other lines.

Three distinct reefs are believed to traverse the Bird-in-Hand property from end to end, and developments at various points in adjoining leases show the reefs to be prolific in rich chutes. The rich specimen stone obtained in January from the Lone Hand Mine was taken from a shaft only thirty yards from the Bird-in-Hand boundary, and from a reef running directly to that boundary. The work of opening up the mine is now being vigorously prosecuted under the personal supervision of the Company's resident engineer, Mr. R. E. Wells, M.E., and operations include a vertical main shaft in an advantageous position, midway between the two principal reefs with crosscuts at various levels, to intersect and work the reefs effectively and economically with one plant of mining machinery.

The property has been examined on behalf of the vendor by C. Chewings, Esq., F.R.S., F.G.S., and by W. H. C. Lovely, Esq., M.A.I.M.E., M.E.I.M.E. (England), whose reports accompany the prospectus, as also a sketch plan prepared by Dr. Chewings. Reports have also been received from Mr. R. N. Wells, M.E., M.A.S., who is in charge of the mine, and the directors have taken advantage of Mr. W. H. C. Lovely's arrival in London last week to obtain from him a confirmatory report, which is also appended to the prospectus.

The purchase price to be paid for the property is fixed at £10,000 in cash, and £3,000 in cash or future-paid shares, at the option of the directors, and the vendors have agreed to pay all preliminary expenses (including brokerage) attending the formation of the Company up to allotment.

Prospectuses and forms of application may be obtained from the bankers, solicitors, and brokers, and at the offices of the Company, London, February 28, 1896.

The LIST OPENED FRIDAY, the 28th February, at 10 a.m., and will CLOSE for LONDON and COUNTRY TO-DAY (Saturday), the 29th. This Property adjoins the Kathleen on the South-West and Blagrove's Freehold on the North-West.

## THE KATHLEEN CROWN, LIMITED,

HAURAKI DISTRICT, NEW ZEALAND.

Incorporated under the Companies Acts, 1862 to 1890.

CAPITAL £75,000, in SHARES of 2s. 6d. EACH, WHICH ARE NOW OFFERED FOR SUBSCRIPTION.

Payable 1s. on Application, 1s. 6d. on Allotment. Sufficient Capital having been guaranteed, the Directors will proceed to allotment immediately on the closing of the List. Share Warrants will be issued on payment of the Stamp Duty.

## DIRECTORS.

H. WILSON, Esq. (Director of the Hauraki and Kathleen Gold Mines, Limited), J. A. TRAVERS, Esq. (Director of the Komata Reefs Gold Mining Co., Limited), G. HARDIE, Esq. J.P. (Managing Director of the Western Explorers Limited),

## BANKERS.

The CONSOLIDATED BANK, 52, Threadneedle Street, E.C.

## BROKERS.

Messrs. WM. R. HARRIDGE and CO., 5, Drapers' Gardens, E.C., and Stock Exchange.

## SOLICITORS.

Messrs. SNELL, SONS, and GREENIP, 1 and 2, George Street, Mansion House, E.C.

## AUDITORS.

Messrs. TRENOW and HEISCH, 20, Threadneedle Street, E.C.

## SECRETARY AND OFFICES.

A. J. LAVINGTON, Dashwood House, New Broad Street, E.C.

## PROSPECTUS.

The Company has been formed to acquire and develop a freehold property situated in the Hauraki Mining District, Auckland, New Zealand, locally known as the Pukepoto Block, containing about 92 acres in the very centre of the Hauraki mining area, and surrounded by such well-known mines as the Hauraki, Kathleen, Blagrove's Freehold, Union Beach, and other celebrated gold mines.

Twenty-six acres of the above adjoins Blagrove's Freehold, and the remaining 66 acres adjoin both Blagrove's Freehold and Kathleen.

With a view of obtaining the best possible advice on the capabilities of the property, and the results likely to be obtained from a vigorous development of the same, the vendor has obtained the reports of Captain Francis Hodge and Mr. John Kelly, C.E., B.A., Authorised Licensed Mines Surveyor, Captain W. H. Argall, the vendor, who is the manager of the Blagrove's Freehold and Komata Reefs Companies, has also made a report upon the property.

Captain Hodge, the manager of the Hauraki and Kathleen Mines, in his report, dated May 6, 1895, states:—

"Various veins and reefs have been worked at different sections as shown on plan, from which small quantities of gold have been raised, and more or less gold is distributed throughout most of them everywhere where worked. . . . I have no hesitation in saying that if these favourable Tuffs are followed down, the veins and reefs will be found larger and better defined and comparatively rich in yield to the richest, either in Coromandel or the Thames Gold Fields in the early days."

Captain W. H. Argall, the Vendor, in his report, dated May 13, 1895, states: "Regarding the portion of Blagrove's Freehold very good results were got from two of the reefs traversing the property. Two tons of ore yielded 4 cwt. 18 dwts. of gold of a value of £3 per cwt. Four tons of ore treated from another Reef gave 2 cwt. 2 dwts. These returns I consider very good, taking into consideration that the quartz was extracted from near the outcrop. . . . These freehold properties are well situated, being in the centre of the Goldfield. . . . Judging from what has been seen on the outcrop, I have every reason to believe that below sea level very rich ore will be encountered, therefore I have pleasure in recommending you to carry out the suggestions given in this report, as I feel certain that if complied with a valuable Mine will be opened up."

Mr. JOHN KELLY, in his Report, dated May 6, 1895, gives full particulars of the numerous reefs out in the property, and the work done upon each, and concludes by saying:—

"Considering that it lies . . . between such mines as the Kananga and Scotty's Hauraki on the north, and the Go-gonda and Hauraki Mines to west and south-west, also from the prospects I have myself seen taken from different places on your ground, I am convinced that you have a most valuable mining property in your hands requiring but a limited amount of capital to develop it."

Prints of these reports are enclosed herewith, and a careful perusal will demonstrate the very valuable nature of the ground proposed to be acquired.

It is the intention of the Directors to carry out the recommendations contained in the Reports, and vigorously develop the property immediately.

The accompanying plan shows the position of the property. The Hauraki Gold Mining Company, which was registered in December, 1894, has in the first twelve months yielded over 35,000 cwt. of gold, valued at £101,554, at a profit of over £21,000, and has declared dividends amounting to £20,000.

The purchase consideration has been fixed by the Vendor at £20,000, payable as to £6,000 in cash and the balance in cash or shares, or partly in cash and partly in fully paid-up shares, at the option of the Directors, thus leaving £14,000 available for working capital as required. The Vendor pays all the expenses incidental to the formation of the Company and the issue of capital up to allotment, except legal and registration charges.

A contract has been entered into for the purchase of the property between William Henry Argall of the one part, and Edward John Hearn, as Trustee on behalf of the Company, of the other part, dated the 25th February, 1896. A copy of the above contract, the original reports, and a print of the Memorandum and Articles of Association, can be seen by intending subscribers at the offices of the Solicitors to the Company.

There are other contracts relating to the payment of the charges and expenses attending the formation and registration of the Company, and the issue of the Company's Capital, to which the Company is not a party. Applicants for shares shall be deemed to have had notice thereof, and to have waived further compliance with Section 38 of the Companies' Act, 1867, in respect thereof.

Applications for Shares must be made on the accompanying form and forwarded to the Company's Bankers, with a remittance for the amount payable on application. In cases where no allotment is made the amount deposited on application will be returned at once without deduction. If the number of shares allotted be less than that applied for the surplus application money will be credited in reduction of the amount due on allotment so far as necessary, and any balance will be returned.

The Directors will also be prepared in due course to issue Share Warrants to Bearer, and any subscriber can have same at once on notifying the Directors and paying the necessary stamp duty.

Prospectuses and Forms of Application may be obtained from the Bankers, Brokers, Solicitors, and at the Offices of the Company. London, February, 1896.

## PRELIMINARY NOTICE.

## THE GRASKOP EXPLORING COMPANY, LIMITED.

Incorporated under the Companies Acts, 1862 to 1890.

SHARE CAPITAL ... .. £120,000,

In 480,000 SHARES of 5s. EACH.

The Prospectus of this Company will be advertised EARLY NEXT WEEK. For further particulars, apply to the

SECRETARY (pro tem.), Mr. W. H. ALLEN.

OFFICES.—SWAN CHAMBERS, COPTHALL AVENUE, E.C.

## REPORTS FROM THE MINES.

## BRITISH MINES.

LEADHILLS.—Brown's vein. Good speed is being made in driving the 160 fathom level north of Jeffrey's shaft on vein 4½ feet wide, which is improving again, and now yields 15 cwt. of lead ore per fathom. The same level driving south of Wilson's shaft is going forward at a good rate; vein looks more promising, being well mixed with spar and end wet. In stoep over this level north of Jeffrey's shaft the lode is worth 35 cwt. of lead ore per fathom. Stoep over same level south of Jeffrey's shaft is producing 25 cwt. of ore per fathom. The two stoeps above drift over the 160 fathom level north and south of Wilson's shaft are respectively worth 40 and 65 cwt. of ore per fathom. In drift south of No. 1 stoep above the 115 north of Jeffrey's shaft the vein is producing stones of lead ore. No. 2 stoep above same level north is yielding 20 cwt. of ore per fathom. The stoep over 100 fathom south of Wilson's shaft is worth at present 45 cwt. of lead ore per fathom. The 85 fathom level is being extended south of Wilson's shaft on vein 4 feet wide, showing a little spar, rather soft, and without mineral. In stoep over this level south of Wilson's shaft the vein will produce 20 cwt. of ore per



fathom. The slope above the 70 fathom level south of Wilson's shaft is worth 80 cwt. of ore per fathom. The vein in 50 fathom level driving north of main rise above the 70 fathom level is improving a little, and will yield 15 cwt. of ore per fathom.—Raik and highwork veins. No further change in crosscut eastwards at the 100 fathom level. Water still oozing from the forebreast. Raik vein at same level both north and south of crosscut unproductive, but north end more promising in character, and end damp. Fair progress continues to be made in driving the 100 fathom level westward on this vein, which is 4 feet wide, but contains less ore, producing only saving work; ground of a congenial character.—George's Roust vein. Going north-west at Gripp's adit level shows less spar, and only spots of lead ore.

**WEARDALE LEAD.**—Report on Weardale Company's Mines for the week ending February 22: Groverake. Crosscutting to Greenleagh vein north from Adamson's rise a strong dooky vein has been cut; there is no spar in it, and we are not through yet. 60 fathom level east a strong spar vein, but very poor in ore, worth 4 cwt. per fathom. Groverake tribute ore for the week 14 bins. —Boltsburn. Stopes in north flats from Watt's level worth 34, 34, 24, 30, and 14 cwt. per fathom. Stopes in south flats worth 10, 40, and 12 cwt. per fathom. Vein stopes worth 20 and 40 cwt. per fathom.—Greenlaw, Nattrass Gill drift no change; we ore drifting east in plate under quarry hazel. Watson's drift, taking down roof and raising 15 fathoms before cross vein. The vein looks better, 3 feet wide, of spar mixed a little ore, worth 10 cwt. per fathom. Races drift, vein divided, we are driving in lead part, which is chiefly composed of plate rider and some ore, but not to value. Stopes worth 16, 10 and 10 cwt. per fathom. Slaty hazel drift, stope worth 14 cwt. per fathom. Lowest drift, strong vein composed of spar with some ore, worth 8 cwt. per fathom. Drifting 8 inches scar limestone, the vein keeps poor, worth 10 cwt. per fathom. Quarry level, stope worth 12 cwt. per fathom.—Sedling. Driving 64 level east, vein worth 14 cwt. per fathom, stopes worth 16, 14 and 8 cwt. per fathom. Stopes above 56 level worth 14 and 16 cwt. per fathom. The 74 level east shows no change. Ore raised for the week, 53 tons; ore dressed for the week, 35 tons; ore and slag smelted for the week, 67 tons. Producing 29 tons of pig lead.

#### COLONIAL, INDIAN, AND FOREIGN MINES.

**ALMADA AND TIRITO.**—Report for the four weeks ending January 25.—Drivages. Guadalupe: The tunnel driving south of Ibarra cutting has been extended 28·2 feet by four men. The lode is massive and quartzose, carrying good walls, but is without ore. The 150 feet level driving south of Taylor's shaft was extended 22·5 feet by four men; total length 123·5 feet. The lode is mineralized for over 1 foot wide, yielding 1 ton of ore per fathom, at 20 ounces silver per ton. The drivage at this level on the Europas lode is mineralized 1 foot, but is not yielding ore in paying quantities. 18·2 feet were driven by four men. In the 150 feet driving north of Taylor's shaft the lode carries stringers of white spar and a little green ore in the bottom. This was extended 14·8 feet by four men; total length 84·7 feet. The 150 feet level driving south of Wilde's shaft was driven 18·3 feet by five men; total length 102·3 feet. The lode has improved, and is now yielding 1 ton of ore per fathom containing 17 ounces silver per ton. The lode is composed of hard quartzite, with black ore intermixed. The lode in the 150 driving north of Wilde's shaft contains a little ore, but is not yielding in paying quantities at present. 16 feet were driven by five men; total length 113·8 feet.—Shafts. Taylor's shaft has been sunk 7 feet, and the 150 plat is near completion. The lode has a nice appearance, and yields of green ore nearly 2 tons per fathom, at 50 ounces silver per ton. The sinking of Wilde's shaft has been resumed. The lode is mineralized 4 feet wide, but is extremely hard.—(Signed) John Nute.

**BLACK FLAG PROPRIETARY.**—Advice to hand are most satisfactory as regards the water supply. The manager reports that the water supply from the mine is increasing satisfactorily with every foot of sinking, and he seems confident that there will be an ample supply for the whole battery of 50 heads. The main pumping shaft had been, on the 13th January, sunk and timbered to a depth of 87 feet 9 inches, and the south hauling shaft sunk to a depth of 90 feet, and timbered within 2 feet of this depth. The pipe line from the tank near the south hauling shaft to the storage tank has already been laid for a distance of 530 feet. The excavation for the storage tank was being steadily pushed on, and it was expected that this work would be completed before the end of January.

**BREMNAES GOLD.**—The following report has been received from the manager, Mr. Daw, dated Haugesund, February 24: We have great pleasure in reporting that the improvement referred to in our last letter in the 400 feet level in Rievig Mine still continues, and as we are pushing the level ahead with all speed night and day, we hope in a very short time to open up for stoping a good section of ground. Other places in this mine show no alteration. In Gapsleog Mine the improvement in the bottom level north is well maintained, but in the rise the quartz has disappeared altogether. No alteration elsewhere.—Fladenes Mine. We see no alteration either in the width or value of the quartz broken from the sink. The panning continues to show gold, and we are of the opinion that the result of the crushing next month will be a satisfactory one. The weather is very bright but cold; ice everywhere.

**CALIFORNIA MILLING AND MINING.**—The directors have received report from their manager on the mill and mine for the month of January: Custom ore milled 1644 tons, California ore 36 tons, total 1680 tons, with an average of 55 stamps at work. Ore is now somewhat scarcer, so that February is hardly likely to show so much ore milled. The output of the mine continues very small, the handling of the water being the heaviest part of the work. At the mill we have gone to some expense in providing new belting and new pumping tables, &c., in order to more economically treat the mill waste, thus increasing the efficiency of the mill, but lower months' profit. Income for the month \$4207·15, expenditure \$3895·45, profit \$311·70.

**CHAFFERS.**—Extract from manager's report:—Crosscut in No. 1 shaft extended further 9 feet. Crosscut in No. 2 shaft extended further 5 feet. No. 4 shaft has been sunk to 90 feet, and a crosscut to the west extended 6 feet. Country hard, but improving.

**GREAT REEF.**—The manager reports work done for the fortnight ending January 15 as under:—On lease 464 west drive extended 55 feet, locking well and showing good gold freely; reef about 4 feet wide, averaging 4 ounces to the ton. Chamber cut on 82 feet level and timbered. Continuing the main to further depth of 7 feet, we will cut the reef in another 4 feet; expect to cut some good gold when reef is cut. The eastern drive 112 feet on lease 558 reef about 4 feet wide shows gold freely 4 ounces to the ton, total distance opened up 167 feet.—Frederick Burge, manager.

**GUY FAWKES.**—Mr. Blatch reports, January 9:—I have experienced many difficulties in pushing on work, owing to some of my men being on the sick list, and the prevailing scarcity of labour at the moment, and I have had to keep the mill running on conglomerate from the dump, which is of a much lower grade than the quartz from the reef.—January 16. I have the pleasure to inform you that the commandant of the district has been able to supply me with a further 28 boys. I have started a new low level on Guy Fawkes for opening up ground for development, and expect to cut reef here in course of a few days. The reef still continues to open out, now 3 feet 6 inches wide, and producing good battery stone. In No. 3 winze the reef is showing gold freely. I have this week discovered an outcrop on Guy Fawkes reef about 2 feet in width in the old workings above the main drive, and three out of four samples gave good panning. I am putting up the smithy shop, of which we are much in need, as all our work has hitherto been carried on outside in all kinds of weather. Battery running merrily, and doing good work; but for reason above stated the yield will be under 1 ounce till the plates get thoroughly set. 215 feet of driving and cutting have been completed during the last fortnight.—H. A. Blatch. Mr. Parry has received a cable delayed in transmission:—Crushed for month of January for Guy Fawkes, reef 126 tons, giving 72 ounces retorted gold, and during same period, for a trial crushing for Ingamasonga, 100 tons for 71 ounces

retorted, which, being over new plates, is considered highly satisfactory.

**KLERKSDORP PROPRIETARY.**—The latest advices from the head office state that the work of this company is being pushed on with vigour. The main shaft on the commonage ground has been sunk to a depth of 160 feet, and it is anticipated that the reef which gave such good results from the outcrop and borehole will be cut at another 90 feet. Several shafts are being sunk on the Black Reef adjoining the properties of the Consolidated Gold Fields and Buffelsdoorn Estates.

**LION (Mozambique).**—Report of the superintendent engineer, Mr. Niness, for the month of December: Drive east on new strike has advanced 7 feet, total distance 16 feet. Drive west has advanced 27 feet, total distance 34 feet, total 50 feet on the new strike. We should have driven a much greater distance in both drives, but we have to close timber them. Through the dolomite being decomposed it is easy to work and requires very little dynamite. So far the reef is uniform in size and value. I think it will be well to continue the main drive, as it is encased in decomposed granite, in the cutting, and when we have sunk on the reef from surface, both walls of the main reef are decomposed granite. From the survey we have about 100 feet to drive to cut the main reef. Number of men employed, two white and 25 native.

**MOUNT ZEEHAN (TASMANIAN).**—Manager reports for week ended January 14.—No. 8 lode, main shaft, No. 2 level. Crosscut west from No. 1 rise extended 16 feet, total 44 feet 6 inches. Have passed through a branch of galena 4 inches wide, but have to drive a little further before I expect to cut the main shoot.—Tributes. Nothing new to report with the exception of Balstraps as men have only just returned from holidays. At Balstraps, main shaft has been sunk to 32 feet which has drained their prospect shaft showing lode in bottom looking exceedingly well, with 2 feet of high grade galena in seams with rich gossan between.

**NEW GORDON DIAMOND.**—Report from the mine, four weeks ending February 22 (less 8 days stoppage), 11,623 loads blue ground treated, yielded 1926 carats of diamonds, and in addition one diamond weighing 192 carats. Night and day washing has now commenced.

**THE NEW HEIDELBERG-ROODEPOORT GOLD MINING COMPANY (LIMITED).**—The capital of this company is £160,000, in 160,000 shares of £1 each, of which 125,000 shares are issued and 35,000 held in reserve. The London secretaries are the Johannesburg Investment Company (Limited), of 7, Lothbury, E.C. The property consists of 291½ mining claims situated on the farm Roodepoort No. 165 Greylingstad, and three good water rights on a practically permanent stream known as the Greylingstad spruit. A further half interest in another water right on the same stream, and a fourth water right near the mine for storage, reservoir, &c., as well as a sufficient number of machine stands and depositing sites to meet all possible requirements. Besides the 291½ claims above referred to, some 12 or 15 more have been pegged by the company to protect machine stands, workshops, and tailings areas, &c. Mr. G. W. Starr, the well-known engineer, has been appointed consulting engineer. The following is an extract from his report to the board, dated August 4, 1895:—

"The continuity of this reef is practically safe for at least the full dip of the property, which lies well to the east of the diorite hills, and the amount of ore to be extracted from each claim should be about 9200 tons. The total tonnage to be extracted from this reef only, after deducting (say) 60 feet from the claims along the apex of the reef for the heavy deposit of subsoil, would amount to 2,474,000 tons, and upon the basis of 80 stamps crushing 132,000 tons per year, which could easily be kept supplied with ore when the southern portion of the property is proven up and developed, the life of the company can be taken from 18 to 19 years. The natural facilities for working are as good as could be desired, there being an abundance of water. The contour of the country allows of a good site for the necessary plant required for reduction purposes. The question of coal, which is rather expensive, costing 30s. per ton, will be practically settled when one or more farms close by have been developed for coal, and the railroad, which is expected to be in full operation by next December, has a siding within 2½ miles of the mine, thereby making freight rates much lower than at present." And, on October 22, Mr. Starr further reports:—"The main shaft has been enlarged from 5 feet by 7 feet to 5 feet 6 inches by 16 feet, and sunk to a depth of 420 feet. It is well timbered for 145 feet. The bottom drives are well under way, and the reefs are well defined where opened out. Samples taken show fairly good panning and fair-sized reefs." Again, on December 17, Mr. Starr reports:—"As requested by your Chairman, I have had your mine thoroughly sampled and assayed, and herewith hand you the assay plan of same, showing you the thickness of the reef and assay value. There are at present ready for stoping below the first level 23,762 tons of ore, having an average thickness of 19 inches, with a value of 14 dwts. Of this there are 6 dwts. free gold and 8 dwts. in pyrites. On the second, or 400 feet level, driving north the rich shoot of ore which has been found on the first level has not yet been reached, but will bring up the grade of ore very considerably." We are informed from Johannesburg that Mr. Starr and the manager place the average workable portion at fully 30 inches, and estimated the ore reserves for that portion and width, and they are both very satisfied with the prospects of the mine. As regards machinery, contracts were entered into during September and October of last year for the supply of a complete equipment of the very best and latest pattern machinery, consisting of a 40 stamp mill of 1250 lbs. stamp, with boiler and engine and everything complete, 4000 ton double treatment cyanide plant, and generally for hauling, pumping, lighting, and sorting appliances, of the most approved class. A large compound has been completed, and workshops and offices with commodious quarters for workmen are finished or rapidly nearing completion. The two 80 horse power boilers for hauling gear at main shaft are in position, and the new head gear over the same shaft with ore bins is in course of erection. Development will be well pushed on, and all machinery will be erected as expeditiously as possible. Tonnage developed for December, 7312 tons.

**NORTH BURGESS.**—The general manager reports under date February 2:—Main shaft is down 90 feet, No. 3 shaft 70 feet, No. 4 shaft 46 feet. Everything looks well. The directors state that the manager has supplied them with particulars of his requirements as regards machinery, and this matter is now having their earnest attention. The directors are anxious that a plant, suited to the exigencies of the district, and arranged upon the most modern and approved principles, should be secured.

**PAHANG.**—Sungei Lembing: Report for December: Pollock's. Work in this mine was much retarded, owing to water difficulties. On the 8th inst, a large volume of water was met with in No. 2 below adit, which flooded the mine up to 30 feet above No. 2 drive, in spite of the pump throwing regularly some 6000 gallons per hour. On the 26th inst, the water was down to 10 feet below No. 2 drive but the same day the top clay gave way, rendering the pump useless, and the water again rose to 70 feet above No. 2 drive. I have constructed a tank to work with the new winding engine; running this for one hour proved it capable of dealing with some 9000 gallons per hour. As soon as our new boiler is erected we shall be able to run this, and I trust quickly drain the mine. From the B winze stope in the intermediate drive 153 tons, assaying 4 per cent, were sent to the battery. About the same amount of ore was broken in the A winze stope, but owing to the above breakdown we were unable to raise it to the surface.—Teague's. The re-timbering of the adit level was completed early in the month, and driving on the lode was resumed; west was advanced 32 feet, total 35 feet from crosscut. Lode 3 feet wide, of promising appearance, yielding 5 per cent. ore; east driven 24 feet, total from crosscut 24 feet. After driving 10 feet, the lode opened up to the full width of the drive, yielding 5 per cent. ore. From the two drives 58 tons were sent to the battery. Leading overhand stopes are now being carried on in each of the drives. The lode is composed of quartz and chloritic schist, the latter carrying most of

the tin, and a little mundic. The whole is good crushing stone.—Willinks adit No. 2 section. Drive east was advanced 12 feet, total from crosscut 85 feet. Lode 1 foot 6 inches wide, carrying a little tin. Overhand stope, lode 2 to 6 feet wide, yielding 6 per cent. ore. The length of payable ore in this stope is over 100 feet, and is increasing.—Nicholson's. No. 1 drive was extended east 24 feet, total 774 feet. Lode 4 to 5 feet wide, carrying 6 to 8 per cent. ore all the way (24 feet). Overhand stope lode 4 to 15 feet wide. The ore from the drive and stope was mixed, and during the month 272 tons were sent to the battery, and assayed 11½ per cent. The length of payable ore in this drive is over 140 feet.—D. W. Jones.

**PAHANG KABANG.**—Report for December.—Brands adit west. This end has been driven 23 feet, total 54 feet, on the course of the lode. The lode has continued fairly well defined, but has varied from 6 inches up to 18 inches in width. The lode now in the end is 18 inches wide, but without tin.—Top drive west. This drive has not held to the top drive east as yet, but I expect to hole it in about a week, which will greatly improve the ventilation of B-and. During the month 29 feet has been driven in this end.—Winze. I have completed the air machine referred to in my last report, and the winze is now in full course of sinking. This winze is now 24 feet below the bottom of the level. Another month's sinking, I hope, will see us deep enough to commence driving towards the new No. 3 drive east. Just after sinking was resumed, the lode pinched out to about 2 inches, but since it has become wider. The lode at present has broken away into the hanging wall, and I have put the men to cut through it, but we have not got through the lode yet.—Kabang Mine: Smyth's lode. Last month I cleaned out a crosscut which had been driven towards this lode, but which was not continued far enough to intersect it. During the month this crosscut has been extended 41 feet. Total length 185 feet. This crosscut is now at a point perpendicular to the old workings, and, according to its underlie, 2 or 3 fathoms farther ought to intersect the lode.—Fredk. John Rich.

**PAHANG CORPORATION.**—Jeram Batam, report for December:—Adit level. The drive west was driven a further distance of 30 feet, total from crosscut 413 feet. The country passed was a black slate country on the footwall, and grey slate on the hanging wall. The lode will average 2½ feet and is composed chiefly of quartz. During the first few days of the month the lode was worth 4 per cent. black tin, at present it is worth 2 per cent. with signs of improvement. The stopes over the back of the eastern drive are turning out at present ore of about 4½ per cent. in quality, and will average 9 feet in thickness. The contractors in these stopes have broken 34 cubic fathoms of ore.—No. 1 above adit. The drive west was advanced a further distance of 19 feet, total from crosscut 521 feet. The formation in face at present will average 5 feet between two good walls, it still bears away in a northerly direction. I have not seen any tin here during the month. The country passed through was a grey slate. A crosscut was put into the footwall a distance of 18 feet, and as we found no disturbance in the country rock this was discontinued, and the men again resumed work in the drive. The stopes over this drive, "western chute of ore," are worth from 5 to 6 per cent. in quality, and will average 6½ feet in thickness. The country here, although not bad boring ground, is very bad for blasting. The contractor has broken 8 cubic fathoms of crushing stuff. The stopes over the back of the drive east have turned out 32½ fathoms of ore, and the quality is worth 3 to 4 per cent. The lode at present will average 10 feet in thickness.—No. 2 above adit. I got the drive west cleaned out, and started a party of men driving. Since then it has been driven 28 feet, total from the crosscut 425 feet, through a grey slate country. The lode will average 3 feet in thickness, and is worth 4 per cent. quality ore.—Shaft. The shaft has been sunk a further distance of 10 feet, total 62 feet from the surface. The country passed through was a hard black slate, interspersed with veins of quartz and calcspar. The plumbago faces have now disappeared, but the hard grey rock still continues on the footwall of the lode formation. During the month the country has got much harder for working, and is both bad to bore and blast. The water still keeps about the same. The contractors have 20 men employed—eight on the windlass and 12 sinking.—Tramway. This is now completed; the contractor has removed 55½ cubic yards of earth.—Engine-house site. The contractor has excavated 120 cubic yards of stuff.—New ore shoot. 33½ yards of earth has been removed. 720 tons of tin stuff were sent to the battery during the month, and 690 tons were crushed for a return of 31 tons oxide of tin. Owing to sickness being prevalent among the coolies I am very short of men, and it takes us all our time to keep the battery running day and night.—Thomas H. Bath.

**QUEENSLAND BLACK SNAKE.**—The manager reports under date January 17 last, that he has carried down the No. 1 shaft to a depth of 57 feet, and that the body of crushing stuff has increased in bulk, and is of a much better quality. That in the crosscut from the No. 2 shaft he has cut a new reef, assays from which show as under:—No. 1 quartz containing carbonate of copper, 9 dwts. 19 grains fine gold per ton, 19 dwts. 14 grains fine silver per ton. No. 2 quartz, 1 ounce 2 dwts. 20 grains fine gold per ton, 2 ounces 2 dwts. 11 grains fine silver per ton. The manager also states that by extending the above-mentioned crosscut a further 30 to 40 feet, he anticipates cutting the Pembroke reef.

**SHERLAWS.**—Report of the work at the mine for the fortnight ending January 18: At 190 No. 7 the level has been advanced 16 feet for 12 days' work, four men employed; total distance from shaft 69 feet. There has been an average of 4 feet 6 inches lode since last report. The lode has been in two divisions, the hanging wall stone has been a ferruginous quartz of good quality, showing gold and giving good prospects from mortar tests. This stone has continued for nearly 30 feet, and looks to be making a big reef underfoot. The footwall stone has been of a rather white class of stone, carrying some fine gold by dish prospects; but it is greatly improving lately in appearance, and getting closer and harder. No. 1 underlay shaft has been sunk 4 feet for 8½ days, four men employed. It is very hard and unfavourable for working, total depth 88 feet. Has to go 6 feet more to reach the desired depth to crosscut from there. 1259 main shaft has been sunk 2 feet 6 inches and 19 feet timbered, six men employed, total depth 30 feet 6 inches. The ground is very hard and bad for working, crosscut from underlay shaft level to main shaft has been extended 9 feet, four men employed 12 days work, total distance driven from level 15 feet. This is very good work in such hard rock. There has been a fair quantity of machinery landed on the mine in the past fortnight, and with the late fall of rain there is not likely to be any further delay in getting on with this work.—C. A. Goy, mine manager.

**TIGER (Massi Kesse).**—Report of the superintendent engineer, Mr. Niness, for the month of December: Drive No. 1 has advanced 32 feet, total distance 362 feet. We have met with a leader here of rich quartz. The drive is still in conglomerate, and has to be close timbered. Length of drive from cutting to greenstone dyke 35 feet. We have gone through the outcrop of a reef here showing well in the pan. Number of men employed, two white and 15 native.

**UNITED GOLD FIELDS OF MANICA.**—Rezende Reef. Extracts from manager's report, January 17: No. 1 shaft. The shaft has just struck the reef on its hanging wall at 71 feet from surface.—No. 2 shaft. The gallery to south of the bottom of the shaft, at a depth of 70 feet, has now, we think, got through the entire reef body. The aggregate width of quartz is 17 feet 6 inches at right angles to the line of dip, so that the width of 15 feet cabled you is no exaggeration.—No. 3 shaft. We have got down to full depth of 70 feet, and galleries have been driven off at this level to north and south to cut the reef. The reef follows an irregular wavy course downwards, but is a large body, quite 11 feet in width, at right angles to the real dip at present. As far as our investigations have gone, it seems evident that a large reef body is continuous from this shaft to No. 1 shaft, a distance of 300 feet, and right to surface, a depth of 70 feet.

**MEYER AND CHARLTON GOLD MINING COMPANY (LIMITED).**—The seventh annual general meeting of this company was held at Johannesburg yesterday. The dividend warrants for distribution among the European shareholders are expected by the next mail.



**AUSTRALIAN BROKEN HILL CONSOLS.**—The mining manager reports by mail for the fortnight ending January 16 as follows:—Block 96, 280 level east. Prospecting drive, No. 4 rise, Stopes north-west drive, driven 4 feet, total 44 feet 6 inches. Prospects in stopes not being encouraging, men have been employed cleaning out shute and doing sundry other work, after which they were transferred to continue the north-west drive, but after driving a few feet and getting into schist, work was suspended here, and men have been removed to No. 2 west off incline to develop a strong vein of iron showing a little galena and canary ore. 280 level east, No. 1 rise east, driven 11 feet; stoping continued; no change. No. 3 rise east driven 8 feet 6 inches, total 63 feet. Lode formation small and rising faster.—Incline. Eastern stopes driven 5 feet. Lode not looking so promising. No. 6 level east off incline driven 6 feet. Lode here is well defined, consisting of carbonate of iron containing cobaltite and fahlerz. Native silver has been met with. No. 5 level east driven 12 feet, total 283 feet 6 inches. Lode formation is widening, and galena has been met with. No. 4 level east, No. 1 rise stoper, driven 13 feet; no change; obtained a little galena and fahlerz.—Note. The quantity of rock mined during this fortnight was 2244 cubic feet.

**BAYLEY'S REWARD NO. 1 SOUTH.**—Mining report, dated Coolgardie, January 6: I beg to report as follows on work done for the fortnight ending 4th inst.:—170 feet level. The rise at back of this level has been put up 7 feet, total 17 feet from back of drive. Lode here is 3 feet wide, with no particular change since last report.—120 feet level. The north drive has now reached a total distance of 136 feet from shaft, same having been driven for the fortnight 8 feet. As yet the face is not showing stone. A winze has been started from the bottom of this level at a point 25 feet north of shaft, sunk 6 feet 6 inches. The lode here is about 2 feet wide, and there is no change to report quality of stone. The stope at this level continues about the same as at time of last report, the lode ranging from 1 to 3 feet in width.—Tom V. Browne.

**BAYLEY'S REWARD CLAIM.**—The following is the report of work done for the fortnight ending 4th instant: Main shaft. This shaft has been sunk and timbered a further depth of 12 feet, total depth 438 feet. During the last few days a change has taken place, the ground at present being very hard and carrying stringers of quartz. Progress will consequently be slower if the hard country continues.—380 feet level. The east crosscut from end of south drive has been extended 8 feet, its total length now being 37 feet. Face still in diorite, with no sign of quartz. West crosscut has been driven an additional 6 feet, total distance 26 feet. Face is very dry, and there is no change to report in the nature of the ground.—Tom V. Browne.

**BLOCK 42 HAMPTON PLAINS.**—Report of Mr. James M. Craze, M.E., general manager, Coolgardie, W.A., January 7.—In accordance with the request in your letter of November 16, I have been over Block 42 estate, and now hand you the following report thereon. The property is situated a little east of south from the I. O. U. district, and there can be no doubt but the same auriferous belt of country traversing the I. O. U. country will go into your Block 42. In passing over this block I was favourably impressed with the large amount of quartz and ironstone scattered all over the surface, and with the many reefs which outcrop in every direction. The main reefs have a direction west of north, but there are a great many smaller ones running in all directions. I find that some little prospecting work has been carried on in different parts of the estate, consisting chiefly of stone knapping or breaking along the outcrops of the reefs, while only in a few instances have trenches or cores been run across the reefs. This work, so far, has not been very successful, for in one case only has payable stone been met with, and that on the 50-acre block that has been pegged near the eastern boundary line, and as I am given to understand belongs to the Hampton Gold Fields (Limited). On this 50-acre block there are several small quartz veins outcropping on the surface, but the prospectors inform me that only in one of them has he (or they) ever seen gold. This one is situated in the centre of the block; its direction apparently is north-west and underlying north-east at an angle of fully 45°. Of this, however, I cannot speak positively, as the reef has only been exposed in one shallow pit—viz., to a depth of about 10 feet. Near the surface the reef is 18 inches wide and carries some good gold-bearing stone, but at a depth of 6 feet it becomes smaller and poorer, while at 10 feet it pinches out, but will probably make again in a few feet. Beside the work described here nothing has been done to trace this gold either in length or depth. I would, therefore, advise that a vertical shaft be sunk a little way from the reef on its eastern side, and if thought advisable later, crosscuts should be extended both east and west. This would not only prove the country for minerals, but I think it is very probable we should strike water there at no great depth, it being situated between some low lying hills. I would also advise that four men, divided into two companies, be sent out to thoroughly prospect the different reefs in different directions. About three miles west of this block, and near the prospectors' old camp, there is a very large reef having a direction north 10° west. This has been prospected a little along the outcrop for over 500 yards, and after the same method as before described, without discovering payable ore. I consider this one of the finest looking reefs I have seen in the colony. It is from 12 feet to 50 feet wide, and stands well out of the ground, in places forming a big blow. The quartz is beautifully laminated and is highly mineralised, containing iron oxide, iron pyrites, galena, and a little zinc blende. I would strongly recommend that this reef be thoroughly prospected below, as well as along the surface of same; that two shafts be sunk at once, a short distance away from the reef, and that crosscuts be driven through it at a depth of from 60 feet to 100 feet. Also that four men be put on (two north and two south of the blow) to cut trenches, cores, or in any other way, work to try and pick up the reef where it is not showing on the surface. To do this we must erect a temporary condenser on one of the lakes nearest the mine, probably the I. O. U. Lake, which would be about 5 miles distant. This we could use until we could sink or bore for water on the estate. In this way we could also provide water for, or sell water to, any other prospectors that would be willing to prospect on these lands, providing water was available on reasonable terms. I have a strong opinion that payable gold will yet be found on this block, also that water will be got at comparatively shallow depths—viz., at from 150 to 200 feet, and would advise that the work I here recommend be commenced at once. This will be sufficient for a while, but I hope soon to be able to report having struck a payable reef, and at same time advise as to a large scale of working.

**CRESCENT.**—Superintendent's report for fortnight ending January 17:—Crescent Mine. South tunnel towards main shoot. Work temporarily suspended to enable us to drive north on the slightly auriferous vein of quartz which crosses the tunnel at 290 feet from its mouth. Our object here is to get under and rise to the winze below Richardson's old tunnel, in order to facilitate the conveyance of stone from the upper workings to the mill, as well as to test the value of the vein referred to.—Victory Mine. Drive north of deep tunnel on Neil's shoot advanced 17 feet, total 60 feet. Lode in end 3 feet wide, and valued at 1 ounce of gold per ton. Drive south of same tunnel extended 13 feet, total 56 feet. Lode formation in end of drive, although maintaining its size, has split into a number of small veins which are barely payable, but as gold has been obtained for some considerable distance further south at the surface, we hope soon to develop a second rich shoot of ore by continuing this drive. The main shoot has now been developed for a length of 116 feet, and the north end, as already stated, continues to carry stone of a highly payable nature. Drive north of shallow tunnel on western lode advanced 27 feet, total 40 feet. The lode is small and poor, but an improvement is daily expected. A contract has just been let to continue the Victory deep tunnel, in order to intersect the western lode at a point immediately under the surface cuts, in which payable stone has been obtained.—Orlando Mine. Deep tunnel extended 14 feet, total 175 feet. The ground has become more favourable for driving.—Erection of mill. The water race and dam have been completed, with the exception of a little lining. The tramways from the Crescent south tunnel

and from the Victory to the mill will be completed in about 10 days. Everything is now ready at the mill for the reception of the machinery, portion of which has arrived at Bright, and will be delivered at the mine in a few days.

**DABIEN.**—The following letter has been received from Mr. Woakes, dated January 23:—After writing my official letter of yesterday I received news from the captains that they had struck old workings in the crosscut south and in No. 2 drift west. I delayed the mail, and this afternoon went down and examined the workings as is possible at present. I am most happy to be able to report that we have found an enormous mass of high grade lode stuff to the south and west of the low grade rock we have hitherto been working in. These workings are different entirely to anything we have yet seen; the greater part of the lode is left standing intact. It is intersected by galleries, stopes, and chambers all most carefully timbered and in a perfect state of preservation. There is at least 30 feet of high grade ore visible to the south and 50 or 60 feet east and west, and these, I believe, are by no means the limits. There is a 12 foot treadwheel and winding gear and launders for pumping, standing erect almost as it was left by the old workers, in a chamber in the solid ore. The place looks like the view behind the scenes of a theatre, a network of stagings, galleries, and wheels; few living men have seen such a sight and this nearly 200 feet below the surface. We have not yet seen any walls of the lode to the south or west, and there are many thousands of tons of the rock standing between us and the adit. These workings are under the mountain to the south, and I am convinced the lode is better at the 100 feet level than it was at the adit. There is no doubt but that we have a wonderful mine here. So far soundings show the workings to be only 7 or 8 feet below us, though I will not say they are not deeper. Men who did this work knew their business, and I see no reason why they should not have gone deeper still; water is the only thing that would have kept them back. In my opinion it is folly to think of such a lode pinching out in depth; the indications are all the reverse. Truly we have found the Espirito Santo Mine. I congratulate you most heartily on the discovery.

**FRONTINO AND BOLIVIA.**—Mr. Eastice's reports on the mine, La Salada, December 29: From the mine agents' reports you will observe that at El Silencio the mineral still continues to be poor, although the lode in the south ground has somewhat improved in size. In Salada the lode has been cut through in No. 3 crosscut and is about 6 feet thick and of good ore. The other sections of the mine are much the same as last reported. At Cordoba the lode in north and south ends of No. 8 crosscut has very decidedly improved, and I hope after we can get a few more miners to begin milling ore again. At Tigrillo the ore from this mine is much the same, but the lode is slightly pinched since last reported on. At Marmajito there is no particular change in any part of the mine. The lode in the western ground has become a little larger and seems to be more settled. In the Marmajito crosscut, the branch of ore met with still holds, but is small, about 15 inches thick.—La Salada, January 10: Silencio. In the bottom levels the ore has much improved, and the No. 5 level north is in good mineral. The lode is small, about 1 foot thick. The stopes are much the same as last reported. La Salada. In the Christmas holidays the mineral milled was mostly from the flat lode; the water in the Pocuné so interfered with the working of the mine in the No. 3 crosscut and levels, that very little could be done on the main lode.—Cordoba. Nothing has been met with since last reported. The lode in No. 8 crosscut is getting thicker and better, and the railroad to the mill is finished. We are now milling mineral again, and hope to be able to keep on for some time. I hope to be able to advise you what course can be best adopted for the future of Cordoba after Mr. Hoskin has finished his surveys.—Marmajito. There is no change to note in this mine. The lode is still small and produces fair milling ore, with a little more water. This water is, perhaps, nothing more than the secessions from the hills around the place, and will be likely to disappear in a few days.—General. Throughout the mines are giving a little better produce than in the past months, especially in El Silencio. Now that the Christmas and New Year's holidays have passed the work has settled down, and I hope that inside of a few days to have everything in order again.—Geo. W. Eastice.

**GEORGE GOCH AMALGAMATED.**—No. 1 section (George Goch Company's works). Report for the month of December: Mine. Number of feet driven, sunk, and risen, 941 feet 6 inches; quartz mined, 9097 tons; less waste rock discarded, 2737 tons; quartz mined and milled, 6360 tons; quartz developed in excess of that mined, 1465 tons.—Mill. Number of days working (60 stamps), 25½ days; number of tons crushed, 6360 tons; yield in smelted gold, 1782 ounces 9 dwts.; yield per ton, 6½ dwts.—Cyanide works. Number of tons of tailings treated, 4500 tons; yield in smelted gold, 986 ounces 18 dwts.; yield per ton, 4.38 dwts.—Expenditure and revenue. Working expenditure. To mining (including maintenance), £3809 0s 2d.; to milling (including maintenance), £1166 11s. 3d.; to general charges, £600 16s. 4d.; to mine development redemption, £1590; to cyanide working, £921 17s. 3d.; to profit for month, £1661 7s. 9d.; total, £9749 12s. 9d.—Revenue. By gold accounts, 1782 ounces 9 dwts. from 60 stamp mill at 73s. per ounce, £6505 18s. 9d.; by 986 ounces 18 dwts. from cyanide works at 60s. per ounce, £2956 14s.; by sundry revenue, £283; total, £9749 12s. 9d.—Working cost. Mining (including maintenance), 11s. 11.73d. per ton; milling (including maintenance), 3s. 8.02d. per ton; general charges, 1s. 10.67d. per ton; mine development redemption, 5s. per ton; total, £1 2s. 6.42d. per ton; value of yield, £1 3s. 5.50d. per ton; balance, 2s. 0.92d.; cyanide working (including maintenance), 4s. 1.16d. per ton; value of yield, 13s. 1.90d. per ton; balance, 9s. 0.74d. per ton.—Expenditure on capital account. Mine development (after deducting redemption account), £1244; machinery and plant, £1021 14s. 7d.; permanent works, £3158 13s. 5d.; buildings, £620 16s. 6d.; live stock, £12; total, £6057 4s. 6d.—No. 2 section (Metropolitan Company's works). Report for the month of December: Cyanide works. Number of tons of tailings treated, 4290 tons; yield in smelted gold, 586 ounces 2 dwts.; yield per ton, 2.73 dwts.—Expenditure and revenue. Working expenditure. To cyanide working, £1050 13s. 10d.; to profit for month, £707 12s. 2d.; total, £1757 6s.—Revenue. By gold account, By 582 ounces 2 dwts. at 60s. per ounce, £1758 6s.; total, £1758 6s.—Working cost. Cyanide working (including maintenance), 4s. 10.78d. per ton; value of yield, 8s. 2.36d. per ton; balance, 3s. 3.58d. per ton. The mill on No. 2 section (Metropolitan Company's works) will be restarted about the middle of February next. Owing to the stoppage of the coal supply the mill on No. 1 section (George Goch's Company's works) had to be shut down for some time in the early part of January, the return for this month will consequently be low.—George Albu, managing director.

**GREAT BUNINYONG ESTATE.**—Extract from manager's report, dated January 20: Contractors satisfactorily progressing at the alluvial shaft; excavations completed and bob-pit perfected. A large quantity of building material has been delivered, and mason work is being energetically proceeded with. Disinfecting at Clones will finish in a few days, and it is expected that teamsters will be delivering at the claim during the ensuing week. Arrangements preparatory to quartz development at the 300 feet shaft being proceeded with.

**HARRIETVILLE.**—Superintendent's report for fortnight ending January 17: Tiddielee Mine, Bibby's new lode. The shaft has been sunk 20 feet, total 96 feet. At 100 feet we shall commence to drive north and south on the lode, which at the bottom of the shaft is just now small and poor. The crosscut east of tunnel east, towards Bibby's lode, has advanced 29 feet, total 83 feet. Passed through a small auriferous vein of quartz. A contract has just been let to drive north of tunnel F towards Bibby's shoot, on a lode which was intersected by a tunnel in former years, and which, on clearing out the tunnel and surveying it, I have identified as the continuation of Bibby's lode. It is somewhat auriferous at the point of intersection, which is 130 feet south of the south end of the shoot at the surface, so that there is every reason to hope that as driving proceeds we shall soon meet with the continuation of the auriferous shoot.—Returns. We cleaned up on the 13th inst., after crushing 50 tons from Bibby's lode, and obtained 75 ounces of melted gold. We also obtained 20 ounces 14 dwts. of gold

from the treatment of concentrates and tailings at the pyrites works, making a total of 95 ounces 14 dwts. melted gold.

**HANNAN'S REWARD.**—The mine manager, under date of January 17, reports as follows:—I have to report as follows for the week ending to-day:—The chamber in main shaft at 300 feet, mentioned in my last report, has been completed. Measurements of chamber 11 feet by 9 feet by 9 feet high. Main shaft has been sunk a further depth of 3 feet 6 inches, total 303 feet 6 inches. I intend sinking the main shaft to a depth of about 315 feet. I have all the miners working in the main shaft. I shall then open out at 300 feet to cut main reef, also cut chamber at 210 feet and open out. The country we are sinking in at present is diorite, traversed by small veins of quartz. The water in the main shaft is rising at the rate of a little over 400 gallons in 24 hours.

**KABOONGA.**—Fortnightly report from the mine on the work carried on in the mine since January 13:—The north-west deep level has been extended 34 feet, making the total length of drive from starting point 184 feet. The bed rock has been rather tight for driving, which has made progress somewhat slow. The rise in the south-west main level enables me to give a satisfactory report. The drive at top, described in last report, has been carried on through the bed rock a little below the wash dirt to 30 feet from the rise, and, being gradually risen, has just touched the wash, which looks well, and is now down a few inches below the points of the back laths. Three dishes of the wash have been tried, and each has given a fair prospect of shotty gold. So far the alluvial dips slightly towards the west—that is, fairly in the direction of the deep ground towards which the deep level is being extended. Should the wash dirt just touched prove payable, an extensive field of it can be opened up. More about it will be known in a few days, but the puddling machines will be the real test of its value. There is an increase of water on the top drive, but nothing very troublesome. The pumps are being overhauled to provide against any further increase.

**MOUNT LYELL.**—Mine manager's report for week ending January 9: South drive, No. 3 tunnel. The face has been advanced 3 feet, making the total length 330 feet. Pyrites wall still making away to the right.—South drive, No. 4 tunnel. The drive has been advanced 5 feet, total 410 feet. Face in good copper pyrites.—No. 2 crosscut, No. 5 tunnel. The crosscut has been driven 3 feet, total 16 feet. Pyrites extremely hard and solid.—Progress report for week ending January 10: Hauling line. Upper end of terminal cutting completed, balance well in hand, drywalling toe of yard embankments (mine tip, &c.), laying water drains.—Smelter building. Iron siding in progress, flooring and partitions of bins and housing over extension bins in hand.—Main chimney. Height above grade 107 feet.—Babcock and Wilcox boilers. Fitting together about completed.—Hot blast stoves. Walls in progress.—Blast furnaces. Foundations between columns finished, upper water jackets suspended in position, brickwork above mantles started.—Roots blowers. Parts brought into place ready to erect.—Converter department. Lower retaining walls all in progress. Weather mostly fine.

**MILLS' DAY DAWN.**—Mine report for fortnight ending December 30: Underlie shaft sunk 2 feet, or 68 feet below No. 10 level. Formation is 3 feet wide. 10 level extended 16 feet, total length 151 feet. There is still a leader on the footwall. 9 level, stopes over average 2 feet of fair stone. 8 levels, stopes over both levels carry 2 feet 6 inches medium quality. 6 level, stopes each side of shaft average 2 feet fair quality. During holidays various repairs have been effected, and boilers cleaned out.

**MOSMAN.**—Mine manager's report for fortnight ending Jan. 4: North Australian. Very little stone remains to be worked. There are about 15 tons on the surface, worth (say) 25 dwts. per ton.—Peabody. Underlie shaft sunk 8 feet, total depth 430 feet. The sink is in formation with leaders of white quartz. 3 level north driven 5 feet, total length 72 feet. Rock granite fairly hard. There are about 16 tons of quartz at grass, worth (say) 2 ounces per ton.—Wyndham. Underlie shaft sunk 8 feet, total below 14 level 145 feet. The shaft is better for working than it was a short time ago.—No. 14 level north. The winze is now 93 feet deep. A well-defined reef 2 feet thick has been cut, but it is too early to say what it is. The stone is well mineralised.

**PRINCESS ROYAL (Cue).**—The manager at Cue reports under date January 13: Crosscut from south vertical advanced to 33 feet 6 inches, at which point the reef was struck. A heavy flow of water has rather hindered work, the amount of water being fully 100 gallons per hour. Stone is 2 feet thick at present level, but enough work was done at first striking to show that it was nearly 3 feet thick lower down. Should say that it was good for 1½ ounce per ton at least.

**BRITISH BROKEN HILL PROPRIETARY.**—Mining manager's report for week ending January 15: Blackwood shaft, 300 level. West crosscut advanced 8 feet, total from plat 166 feet; face showing milling sulphides. We sorted out 12 tons, averaging 14 per cent. lead, 10 ounces silver, and 10 per cent. zinc. 200 level north drive off No. 1 west crosscut lengthened 23 feet, total 105 feet; face at present in mallock intrusion. North drive western extension driven 5 feet, total length 83 feet, showing good sulphide ore. We mined 30 tons, averaging 22 per cent. lead, 14 ounces silver, and 19 per cent. zinc.—Howell shaft, 300 level. Westerly crosscut extended 12 feet, total 247 feet, carrying fair grade sulphide ore. We mined 32 tons, assaying 18 per cent. lead, 11 ounces silver, and 18 per cent. zinc.—200 level, South drive off No. 2 west crosscut advanced 13 feet, total length 133 feet, with milling sulphide in face. We mined 68 tons, averaging 20 per cent. lead, 13 ounces silver, and 24 per cent. zinc. Winze chamber finished, and winze sunk 6 feet through splendid sulphide ore. We mined 58 tons, assaying 24 per cent. lead, 12 ounces silver and 24 per cent. zinc.—Surface. Baths adjoining change house completed. Good headway made on erection of jiggering plant, and large quantities of machinery for same arriving almost daily.—Ore shipments. 30 trucks carbonate ore dispatched from Marsh shaft for Port Adelaide. The assays of following five lots have been agreed with Block 14 Company, Port Adelaide, from previous deliveries, viz., 300 tons (net) carbonate ore from 1 shaft, containing 64 tons lead, and 16,008 ounces silver.—Week's assays. Carbonate, lead 18 to 19 per cent., and silver 30 to 44½ ounces per ton; sulphides, lead 11 to 29½ per cent., zinc 12½ to 27½ per cent., and silver 7 to 17½ ounces per ton.

**TRUE BLUE (Hannan's).**—Mine manager's report for the fortnight ending January 20:—No. 1 shaft. This shaft has been sunk a further depth of 4 feet, making a total distance from sill of 100 feet. At this level I started a north-east crosscut in the direction of the Brownhill Company's boundary. The crosscut has been driven 17 feet in good class of country for the existence of lode formation. Another 23 feet of driving should bring us to the point where we should intersect the formation that carries the leader in the intermediate level, underlie shaft. I shall keep this crosscut going till the boundary is reached.—Underlie shaft. Intermediate level. This level has been extended 47 feet 6 inches, making a total distance from the shaft of 52½ feet. At a distance of 30 feet from the shaft a nice leader about 10 inches in thickness came in the end, with assay value 3 ounces 8 dwts. 20 grains. The air in the drive has been very light; so, in order to provide ventilation, I intend this week sinking a winze from the bottom of the stopes to the level. At point No. 4 I started a shaft 6 by 3, and shall continue it to a depth of 80 feet, and crosscut the section. There is a large area of unprospected ground in this portion of the company's leases; the shaft has been sunk 10 feet, and will be known as shaft A, whilst prospecting is carried on.—Jubilee section. Jubilee shaft: I have let a contract for driving a crosscut 50 feet west, at a depth of 100 feet from the brow, and the contractors have commenced work.—Shaft B. As mentioned in my last report, whilst prospecting here I obtained a fair prospect in a vein 9 inches in thickness, about 10 feet below where the vein was showing, all at a depth of 50 feet from surface. I opened out and drove west a distance of 9 feet, and cut through the lode, which is composed of quartz and 5 feet in thickness. The stone is of poor quality, but, notwithstanding it is an important discovery, being the largest body of quartz discovered in this section below the surface levels. This week I shall commence driving on the course of the lode and



thoroughly prospect it. Taking the prospects of the property generally, whilst no discovery of a payable character has been made, there has been a marked improvement during the fortnight's operations.

**SELUKWE DEVELOPMENT.**—The following report has been issued:—According to your request I herewith submit for your information a statement of the work done during the past year at the Tebekwe Mine. I gave my ideas and estimates on this property at the time of its purchase, and since that time the developments have proved that I was correct in my judgment as to the future outcome of the mine. Commencing at the northernmost portion of this property, we ran in a drive 335 feet below the apex of the hill, which at this point slopes to the south down to the Tebekwe Creek. Shaft north No. 2 has been sunk from the top of this hill connecting with the drive; this drive has passed entirely through the line of old workings along its length; the reef in the face has become poor and narrow. In this drive there is some very excellent ore, but it is rather patchy, and, for the present, owing to its isolated position, could not be drawn upon to supply ore for the mill. I may mention that this line of works is not the same as the old workings shown in the other portion of the map, and from this I did not expect to develop anything extraordinary. Returning to the main part of the mine, commencing at the north end of the main old workings, a crosscut from the west of the hill has been run in a distance of 165 feet. This west crosscut or adit, as it may be called, was driven to connect with the shaft No. 1, which has already been started on the surface. At the intersection of the west crosscut the reef was encountered 10 feet wide. The pay ore seemed to be at this point almost entirely on the footwall, and it has so continued both north and south. It has given an average width of pay ore from 30 inches to 36 inches so far as driven on both north and south. The value of this ranged, all the way, from 1 dwt. to 119 dwts. On an average the ore from this point, both north and south, would give a width of 30 inches, and go over 2 ounces to the ton. Since the cutting of the reef at this point, a drive has been started north, and also one south. The north drive has now attained a distance of 30 feet; the reef is 60 inches wide of pay ore, averaging 24 dwts. The south drive at this point has been pushed ahead a distance of 46 feet, giving a width of 12 inches of pay ore, which averages 13 dwts. Taking the total average of this drifting on the reef, it will be seen that it would show up a high-grade ore, and in large quantity. Following the reef to the southward, the next shaft is North No. 3, which is sunk to a depth of 74 feet. The last assay taken from this shaft was at 66 feet, which showed a width of 24 inches and a value of 20 dwts. The next shaft to the south is McKinnon's shaft; this is now down 121 feet, showing a fine reef 4 feet wide, and averaging 20 dwts. In this shaft, from the point where the ancients left off working, at about 45 feet down to the present depth, virgin ore has been encountered all the way, the reef averaging from 2 feet to 3 feet wide, and its value ranging from 1 ounce to 3 ounces. Continuing on the main line of reef the next shaft is the 300 feet south, this is 300 feet south of the main shaft, and has been sunk a distance of 26 feet. The reef is 28 inches wide and the value 14 dwts. The next shaft to the south is the 600 feet south shaft, now down 61 feet, the assay at this point being 5 dwts. I may say, here, that the average of this shaft will be far above 5 dwts. The next shaft to the south is the 900 feet south, which shows values of a few dwts. 300 feet further south is the 1200 feet south shaft; this is only 12 feet deep and is still prospecting. The next is the 1500 feet south shaft; this is very shallow, just showing the reef. To the south, some 150 feet from this, a drive has been started along the hill in excellent ore, and at this point also the south shaft has been sunk on the reef a distance of 58 feet, at which depth a level has been run to the north on the reef a distance of 126 feet. Although this is in the extreme south end of the workings, the ore from this level shows very well. This gives us one unbroken line of old workings with shafts sunk every 300 feet, for over 3000 feet, in each and every one of which we have got pay ore, and the fact that the reef was so extensively and continuously worked by the ancients, is more evidence that the mine has been and will be a payable one. Going back to the McKinnon's shaft, it will be noticed that another line of old works intersects the main reef at about this point. A main three-compartment working shaft has been sunk very near this reef to a depth of 147 feet, at which depth is the first working level of the mine; this gives us about 100 feet of backs below the lowest of the ancient workings. To the south, some 800 feet, a shaft has been sunk 75 feet, called the Nigger shaft; nothing has been done with this since the purchase of the property, but in my first report you will see that it gave an average of about 18 dwts. This reef will also play an important part in the development of the property. Taking into consideration the excellent values that we have obtained in all our development work along the line of reef, I have no hesitation in saying that I believe the property to be one of the best in Rhodesia. An adit level has been started from a point in Abraham's ground to the east of the main reef, which, after being run a distance of less than 500 feet, will tap the reef a vertical depth 104 feet below the west crosscut level; this will virtually, and with a very small amount of work, which can quickly be done, give us 200 feet of backs; it will also furnish an outlet for waste and water from the mine. The mine is already equipped with two winding engines, two boilers, a quantity of rails, two sinking pumps, 12 ore cars, a first-class camp, blacksmith's shop, and good roads; we are also building an excellent compound for the Kafirs. Future plans. The mine has been laid out in a most systematic manner, and my idea of working has been to do so through the main shaft, which will be continued as fast as possible to a depth of 500 feet. Drives will be put along both the main reef and the spur, and in this way a large quantity of ore can be opened up in a very short time. All the hoisting and pumping of water should come through the main shaft, and everything has been arranged with an eye to the concentration of the work at the least possible outlay. I now strongly recommend you to purchase a 20 stamp mill and the other necessary power machinery for pushing the development work upon the property much faster than we have hitherto been able. I should locate the mill near the mouth of the main shaft, and hoist direct to the top of the mill in order that the entire working of the ore, from the time it enters the mill till it leaves in the shape of tailings, shall be automatic. I think you will be wise in ordering your mill immediately as, under the most advantageous circumstances, it would be November 1 before it could be erected and running. The mill would be supplied by water from the Tebekwe Creek until the mine furnishes sufficient to run the mill with; the water would be pumped from the creek by the installation of an electric pump driven from the main dynamo, which would be in the mill. By the time the mill could be erected we could (under favourable circumstances) have the second level opened up, giving us about 200 feet of backs to run the mill with and to hold in reserve. Above this second level we can estimate, on a 30 inch reef, about 100,000 tons of ore which would keep 20 stamps supplied for three or four years. Should it be deemed advisable at any time to add 20 additional stamps it could easily be done without even stopping the mill in its work, as the original mill will have sufficient power for 60 stamps. The ore carries sufficient lime to make it exceedingly good for crushing, and it will be easy to amalgamate. It will be advisable to provide plenty of working capital (say £50,000), and, perhaps, it will be wise to make provision for a further £50,000, in case it should be thought desirable at any time to increase the stamping power. Should it be decided to purchase the mill at once, I will give a detailed list of all machinery, cost, and so forth, necessary for the installation. With 20 stamps it will be possible to make an output of 2000 ounces per month should the ore continue as it has been in the mine. Of course by drawing from selected ore this output could be largely increased, but my views on this point would be simply to make a steady and legitimate output from the property, and let the same stand upon its own merits, for, in so doing, I have no hesitation in saying that properly conducted and under skilful guidance the Tebekwe Mine should be one of the best in Africa.—C. J. Clark.

## REVIEW.

**Petroleum.** By Boverton Redwood, F.R.S.E., F.I.C., &c. (Charles Griffin and Co., London, 1896.) Price 45s.

It has been an open secret for some time that Mr. Boverton Redwood, the well-known petroleum expert of the City of London, was engaged upon an exhaustive treatise upon his special subject, and the publication of such a work by so eminent an authority was naturally looked forward to with interest. Nor has this interest been in any way doomed to disappointment; it is, of course, no compliment to Mr. Redwood to say that this is the best work in the English language upon this entire subject, because there is no other; nor is it to be anticipated that any other is likely to be required for a long time to come, when the first forms such a thoroughly standard work. It would be impossible, within the limits of an ordinary review, to do justice to the immense mass of valuable information that is here epitomised.

The work commences with a chapter on the history of petroleum, and the gradual development of what is now a gigantic industry, whilst the next chapter treats of the geological and geographical distribution of the oil and allied products, such as natural gas, bitumen, ozokerite, &c. This is a most comprehensive and valuable chapter; British occurrences are fully treated, although a little more attention might, perhaps, have been devoted to those curious substances, the elaterite and bitumen stalactites of Derbyshire. We are also sorry to see that Mr. Redwood, who seems to have gone to Dutch sources, as was but natural, for his information on the oil wells of Sumatra, and the other islands of the Malay Archipelago, has not thought fit to rectify the Dutch spelling of the native Malay names. When native words have to be spelt in Roman characters, it is as well to follow the now very widely adopted system of the Royal Geographical Society, and *e.g.*, to write "Tungal," and not "Toengal," as our author has done. Considerable attention has been paid to the distribution of petroleum and related substances in geological time, and the author is careful to point out that these are not confined to any particular formations, but range through all from Laurentian to Tertiary. Considerable care has been devoted to this portion of the subject, and the geological part has been, on the whole, well done, although we cannot agree with the author in every case. We would not like, for instance, to endorse his statement that "the solid and semi-solid varieties (of petroleum) may be considered as intruded into the strata, precisely as mineral veins are formed." The italics are our own, and our objection, of course, is to the words which we have italicised.

The next sections, on the chemical and physical properties, and on the theories respecting the origin of petroleum, are in every way excellent, and are most fully and ably handled.

A most interesting section is that on the various methods employed in digging and boring oil wells in various parts of the world. This extends over all methods, passing in review the primitive Chinese methods and their modern developments in American boring plant, as well as the most approved Continental systems with free-falling cutters and with hollow rods, and finally the most recent forms of diamond drilling. Costs of the various systems and rates of progress, illustrated by records of actual boring, are freely given, so that this chapter forms a most valuable compendium of modern boring.

Next follow accounts of the various methods used in refining petroleum, due prominence being, of course, given to American and to Russian methods; whilst another chapter is devoted to the distillation of oil shale in Scotland, on the Continent, in New South Wales, and other places. A most important chapter—important to all engaged in any branch of industry in which petroleum plays a part—is the next one on the Transport, Storage, and Distribution of the oil. In this section such leading subjects as pipe lines and tank steamers, and such small details as cans, barrels, and cocks, are fully described, discussed, and compared.

The next section treats of the various methods and apparatus employed in testing petroleum and allied products, the requirements of legislation in various countries being continually referred to, so that the observer may know whether any oil he is testing will satisfy the Legislative enactments of foreign countries. We cannot avoid referring to the very good description of Mr. Rodwood's own method of testing for petroleum vapour, and the beautiful photographs of the appearances presented, which form an admirable frontispiece to Volume II.

Then we find a section devoted to the uses and applications of petroleum, including descriptions of various forms of lamps and burners, oil gas, and various petroleum engines, winding up with a brief account of the various petroleum motors, the employment of some of which in horseless carriages seem to be one of the expected developments of the near future. The last section is devoted to regulations and enactments controlling the transport, storage, testing, uses, &c., of petroleum and allied products all over the world, whilst some appendices are given containing a large amount of statistical information; the latter would, perhaps, have been more useful had all the various weights and measures been accompanied by their equivalents in any one system—the metric for example.

We have said enough to show how wide the range and how thorough the completeness of this monumental work. To criticise it effectually is out of the question, for much of it is beyond criticism, and could only have been written by a man in the author's very exceptional position. We can only congratulate him upon the admirable manner in which he has executed his task. To say that the work is indispensable to all who have to do with any of the applications of petroleum, not to speak of those engaged in its manufacture or transport, is almost a truism.

We are very pleased to be able to add that the get up of the work is highly creditable to the publishers, the illustrations being notably superior to those of most previous volumes of the same series that have been brought to our notice. The only pity is that the engravings of plant and machinery are almost without exception unprovided with scales, so that the lay reader does not know whether the length of a boiler, say, or a reservoir, has to be taken in feet or in inches.

**BURMESE IRRIGATION.**—Colonel Otley, who recently visited some of the irrigation works in Burma, will, it is understood, recommend an increased grant for irrigation in Burma, and the taking in hand of the extensive Mandalay Canal project. During his hurried visit to Burma, Colonel Otley was unable to examine several of the projects as fully as he could wish, and it is probable that he will return to the province to make a more detailed examination.

**THE "NIAGARA" PULVERISER AND CONCENTRATOR.**—Messrs. Easton, Anderson, and Gooden (Limited), of the Erith Ironworks, Kent, and 3, Whitehall-place, announce that a syndicate has been formed under the most powerful South African and Australian auspices to take over the selling rights in the "Niagara" crusher and concentrator, which has been attracting so much attention in mining circles. Messrs. Easton, Anderson, and Gooden (Limited) retain, of course, their exclusive right to manufacture these machines throughout the world, but all enquiries with regard to them should be sent to the Niagara Pulveriser (Limited), 3, Whitehall-place, S.W.

## MINING IN NEW ZEALAND.

(FROM OUR OWN CORRESPONDENT.)

THE mining industry throughout the North Island for the year just closed has advanced at a tremendous rate. The gold returns are a big improvement, and are, perhaps, the best that have ever been recorded from this island for many years past. The boom which has slackened off has been the greatest and most sustained in the history of the gold fields of New Zealand. As can be seen by the gold and bullion production for the year, the boom has been based on a thorough solid foundation. The output of bullion from the Waihi Mine is, in itself, sufficient to establish an idea that the gold and bullion production of this island is steadily increasing, and when all the new additional crushing plants are completed the further increase in the returns of bullion should have a big tale to tell at the end of 1897 and 1898.

To take a glance at the gold returns, it will show that the introduction of scientific methods of treatment for extraction of the precious metal has had a very marked influence on our returns. In the Ohmémuri district, the free milling ores in the different centres are well adapted to the cyanide of potassium treatment, and, in consequence, that system is now very largely gone into, and has been the main factor in re-establishing a poor and despised gold field, for without the cyanide treatment the Ohmémuri and Kuaotumo gold fields would have been districts of the past—that is, as far as the production of gold and bullion is concerned.

Large areas of ground have been taken up during the year, and 169 new mining companies formed, which, with other companies now under operation, should greatly increase the output of 1896.

The return of bullion from the Great Waihi Mine for the ending five weeks of the past year is a record one. They crushed and treated 3840 tons of ore for the five weeks ending December 21, 1895, the yield being 10,813 ounces of bullion, valued at £14,310 3s. 6d. In addition to this, 1599 ounces bullion, valued at £2056 17s. 2d., was recovered from 1675 tons of tailings, the total value for the period named being £16,367 0s. 8d., the yield works out at the rate of £3 14s. 6d. per ton.

During the year 33,670 tons of ore have been treated, for a return of £119,046 0s. 8d., as compared with £82,820 from 24,864 tons treated the preceding year. The present magnificent return brings the grand total obtained from this company's property to £353,517, and a further increase may be looked for, when the additional 100 stamps are once set in motion. The lodes worked at the Nos. 1 and 2 levels are without change, and the output of ore is quite consistent in quantity and quality to that won from the mine since it was first opened up.

The Waitakauri Gold Mining Company's property is being systematically developed. The return of bullion for the year is very good, being 9450 ounces from 2100 tons of ore. This is the tonnage of ore passed through the company's primitive experimental plant of 10 stamps. The new plant is well under way, and when completed and in work the bullion returns will be very considerable.

Komata.—This property is included in the Waitakauri Company, and with the large lodes trending through the area will be of importance when connected with the company's new mill. I predict a great future for this company.

In Owharua a great deal of work is going on here, and during the past year the value of bullion recovered by tributaries was £207 14s. 8d. Capital for further extensive development is what is required here, and I feel confident that rich deposits of gold would be won if the lodes were once opened at deeper levels.

The New Zealand Crown Company, situated in the Karangahake portion of the Ohmémuri mining district, have had a very successful year. They are at present erecting 20 additional stamps, and when completed they should be the means of considerably increasing the output. The following statement shows the tonnage of ore treated during the year, and the bullion extracted therefrom:—6000 tons of ore were treated, valued at about £23,000.

The Woodstock Company, in the same district, treated 2700 tons of ore for the return of £9300 worth of bullion. An increase in the reduction plant is now in progress, and will place the company in the front rank of bullion producers when once in operation. The reefs are large, and contain ore of exceptional high value.

At Thames proper the mines have been in steady operation throughout the year, and the return of gold on the whole is very satisfactory. The following is a correct statement, with the exception of private claimholders and others, and with their part of the production, it would bring the total yield for the year up to £85,000 worth of gold.

	Ozs. dwts.	£	s.	d.
Alburnia Co. and trib., 2034 tons..	1,223 8	3,191	2	6
Cambria Co., 375 loads ..	679 0	1,859	4	4
City of Dunedin trib., 163 loads ..	183 17	579	0	0
Come's Kurunui No. 2, 657 tons..	971 4	2,515	2	0
Hazelbank Co., 258 loads ..	289 5	787	14	4
Hazelbank trib., 1670 loads ..	214 1	561	7	5
Little Willie Claim, 301 lbs..	206 17	620	0	0
May Queen Co., 6048 loads ..	6,928 1	19,182	9	9
May Queen tributaries, 294 loads ..	1,156 9	3,112	7	8
Moanataiari Co., 6085 tons ..	1,928 6	5,236	2	3
Moanataiari tributaries, 3636 tons..	752 10	2,020	1	4
Monowai Amalgamated Co., 479 tons	..	697	11	1
North Star tributaries, 119 loads ..	194 19	498	4	6
Occidental Co., 41 loads ..	32 7	87	13	6
Occidental tributaries, 9 loads ..	200 11	545	14	10
Orlando Co., 195 loads ..	74 0	196	1	3
Royal Co. (Tapu), 12 tons ..	21 0	60	0	0
Sheridan Co. (Tapu) 335 tons ..	296 14	900	0	0
Tararu Creek Co., 300 loads ..	164 12	532	11	0
Victoria Co. and tributaries, 373 loads	1,074 0	2,965	0	0
Waioatahi Co., 2313 tons ..	2,316 1	6,368	7	8
Waioatahi Co. tributaries, 1471 tons..	271 3	707	12	0
	17,788 13	£49,508	19	1

The Coromandel Mines are all being vigorously developed. The Hauraki continues to turn out rich ore, and the yield for the year cannot be considered otherwise than a phenomenal one—£87,118 for 29,039 ounces of gold, valued at £3 per ounce.

At Kuaotumo the Try Fluke treated 5000 tons of material for the yield of 3117 ounces, valued at £7985. The Kapaui Vermont crushed 2580 tons for 5352 ounces, value £1795. Other small returns from this district are not worthy of mention. It will be seen that the gold and bullion product is exceptionally good, and should, during the present year, be very largely increased.

MR. THOMAS E. HARDY, of Coolgardie, has been appointed by the directors of the West Australian Gold Concessions (Limited) as superintendent for the following three properties in the Hannan's district, owned by the Concessions, viz.:—Hannan's Golden Dyke (Limited), 18 acres; Brownhill Great Eastern (Limited), 24 acres and Hannan's Gold Hill (Limited), 86 acres.



## BRITISH SOUTH AFRICA COMPANY.

## DIRECTORS' ANNUAL REPORT.

THE report of the directors of the British South Africa Company for the year ending March 31, 1895, was issued on Wednesday last, with balance-sheet showing the financial position of the company at that date. The report records the leading events which have occurred up to December, 1895.

## Railway Development.

The report says:—

The shareholders will remember that the Bechuanaland Railway Company (Limited) was formed in 1893 for the purpose of constructing and working a railway from Vryburg to Mafeking, and thence northwards towards the River Zambesi. The line to Mafeking was opened for traffic in October, 1894, and the net earnings for the 10 months to the end of July, 1895, have been equal to 4 per cent. per annum on the cost of this section. The distance from Mafeking, the present railway terminus, to Bulawayo will be under 500 miles, and the section from Mafeking to Gaborone, a distance of about 95 miles, is now in course of construction, and will be opened about July. The cost, as per contract, is £2575 per mile, including bridges. From Gaborone the line will be continued to Palapye, a further distance of about 175 miles. The survey for this is almost completed. The line will be eventually continued to Salisbury, via Bulawayo, connecting with the Beira line at Umtali. The company's territories will then be well served by railways. In September, 1895, an issue of £900,000 5 per cent. debentures and debenture stock (part of a total authorised issue of £1,300,000, the interest on which is guaranteed by this company for 20 years), was made by the Bechuanaland Railway Company. The subscriptions were largely in excess of the amount required. Up to the present only 20 per cent. has been called on the debentures. The balance will be called as required to meet the expenses of the construction of the railway. The British South Africa Company advanced the money required for the construction of the line from Vryburg to Mafeking, taking 6 per cent. debentures issued by the railway company, and have agreed to exchange these debentures for an equivalent amount of 5 per cent. mortgage debentures or debenture stock, part of the above £1,300,000. As is well known, the Beira Railway, in which the Chartered Company has the control, offers the only convenient means of approach from the East Coast to Mashonaland. It will be remembered that last year it was reported that the line had been carried to Chimio. Surveys have been made for the line to Umtali and Salisbury, and the construction of this extension will be shortly commenced. A new railway company, called the Beira Junction Railway Company (Limited), has been formed with the object of constructing a railway 36 miles in length connecting Port Beira with Fontevilla, the present terminus of the Beira Railway. When this line and the extension to Salisbury are completed, the capital of Rhodesia will be in direct railway communication with the sea coast at Beira. The company's engineers report that, although construction has been somewhat delayed, owing to the scarcity of labour, fair progress has been made, and it is expected that the line will be completed and opened for traffic within a few months. All permanent way and other materials required from this country have been delivered at Beira, and up to the end of December last about 20 miles of the earthworks and 23 bridges and culverts had been completed, and the rails laid for a distance of 7½ miles. A deep-water pier is to be erected at Beira, as the southern terminus of the railway. The materials for this work have been shipped, and as soon as these are received at Beira the pier will be commenced.

## The Bulawayo Hospital.

As stated in last year's report, it was decided that a memorial to the memory of those who fell during the Matabele campaign should be erected by public subscription, and that it should take the form of a hospital at Bulawayo, which has now been completed, at a cost of £6500.

## The Telegraph System.

Mr. Somerset R. French, Postmaster-General of the Cape Colony, reports that the British South Africa Company's telegraph business is a flourishing one, and that the telegraph system has worked successfully during the year, no complete interruption of communication of any moment having occurred. The work done during the past year included the completion of the new wood pole line between Bulawayo and Charter on February 7, 1895, a few days only after the date anticipated in last year's report. This route follows the main line of development, and has been and will continue to be of great value to the company. Already a branch line from Gwelo to the Selukwe mining district has been authorised, and is approaching completion. The proposal to erect an iron pole line between Mangwe and Macloistsie (96 miles) has been given effect to, and the work was completed on June 21, 1895. As a consequence Macloistsie has become the transmitting station for the company's system in place of Palapye. The temporary military line between Palapye and Tati and Ramagaban is in course of being dismantled; the material is, however, of little value. In order not to place Tati under any disadvantage in respect of this change of route, the line from thence to Mangwe has been strengthened by the alteration of the temporary military section from Tati to Ramagaban (18 miles), into a wood pole line. Besides the foregoing and other necessary works, details of which are given below, which have been carried out under Mr. French's direction, the company has, under contract with the Beira Railway Company, completed the telegraph line from Chimio to Salisbury. This line, although not formerly taken over from the contractors, or connected with the system generally, was, under a temporary arrangement, made available to the public on September 16, and, in conjunction with the Beira Railway Company's wire to Beira, affords communication between Salisbury and its seaport. The total length of the telegraphic line under the control of the company south of the Zambesi now in operation is 1354 miles. The company's traffic receipts during the 12 months ending March 31, 1895, were £9701, while the expenditure on working and maintenance was £6432. For the six months ending September 30, 1895, the receipts showed an approximate total of £7631, and the expenditure £3389. In the progress of a new country it is naturally a difficult matter to procure and retain a staff in all respects suitable for such an onerous service as that of posts and telegraphs, and it has been considered desirable to materially improve the pay and status of the officers of both branches, who have worked cheerfully and commendably under trying circumstances. The directors again desire to thank Mr. Somerset R. French, the Postmaster-General, Cape Colony, for having freely given, with the permission of the Cape Government, his valuable services in advising on the extension and general administration of the company's telegraph system. With regard to the construction of the Salisbury-Tete section of the line of the Trans-Continental Telegraph Company (Limited), it was anticipated before this report appeared that the line would have been permanently completed and handed over by the contractors to the company; owing, however, to exceptional difficulties, caused, principally by the scarcity of native labour, the shortness of water due to prolonged drought, and the rocky nature of the country beyond Mount Darwin, previous anticipations have not been realised, although temporary through communication was made with Tete on October 22, and the communication has been fairly well maintained since that date. The latest information in regard to this section is that 163 miles of permanent line have been erected, and there are 75 miles of a temporary character. Strenuous efforts are being made to finally complete the section without further delay. It may be added that an office at Mazoe on this section was opened on September 24, 1895. Since communication was established with Tete on October 22 it has been maintained by joining the completed portion of the line from Salisbury to the Portuguese wire, which runs in a southerly direction from Tete, by means of a temporary line 82 miles in length. It was originally arranged that there should be no public telegraph office of the company within Portuguese territory, but at the request of

the local Portuguese authorities temporary arrangements have been made for the acceptance of telegrams at their local office at Tete—a step which has been of obvious local advantage not only to the authorities, but to the public, in that it has placed Tete in telegraphic communication with Delagoa Bay, Mozambique, and the outer world generally. The importance to the Portuguese Government of the establishment of a permanent office at Tete, from an administrative point of view, and also on commercial grounds, is so great that it may eventually be found to the advantage of all concerned that a modification of the original stipulation be made. It should be mentioned here that the Portuguese Government has erected a telegraph line from Chinde to Tete, and that by using the Trans-Continental line, which runs through the latter place, the important shipping community of Chinde is brought into touch with other parts of Central and Southern Africa, as well as with Europe and the rest of the world generally. Chinde is the seaport of Northern Rhodesia and the Nyasaland Protectorate. Communication has been recently established between Salisbury and Blantyre, and congratulatory messages have been exchanged between the Right Hon. C. J. Rhodes, M.L.A., and Her Majesty's Commissioner and Consul-General, Sir H. H. Johnston, K.C.B. In connection with the projected extension north of Blantyre, 200 miles of material was shipped from the Clyde in the month of June last. The material is of a lighter description than that originally sent out, the poles being specially manufactured for the purpose, and the line will be much more economical in construction. The material was specially made up into packages, weighing about 50 lbs., and duly classified into sections, so that when active operations are recommenced there should be no difficulty in securing its distribution at the various depots at a minimum of expense. A working agreement has been entered into between the African Trans-Continental Telegraph Company (Limited) and the British South Africa Company with regard to telegraph rates, which is mutually satisfactory, and which follows the general lines of the South African Telegraph Union.

## The Mail Service and Administrative Staff.

During the year many improvements in the mail and passenger communication between Cape Colony and Mashonaland and Matabeleland have been effected.

The present European administrative staff in Rhodesia (exclusive of police) numbers some 130. The civil staff has been considerably augmented during the past year. It has been found necessary to constitute three new magistracies—namely, at Melssetter, Gwelo, and Tuli. Formerly the judicial functions at these centres had been discharged by special justices of the peace, but the rapidly increasing population rendered it imperative to appoint officials with wider powers. The Department of Public Works, previously a branch of the Surveyor-General's Department, has been incorporated with the Mines Department, and placed under the control of Mr. George Pauline, as Commissioner of Mines and Public Works. Sir Thomas Scanlan, K.C.M.G., has been appointed legal adviser to the company in Rhodesia, and a member of the Council.

## The Land Commission.

The Matabeleland Order in Council constituted a Land Commission, consisting of a Judicial Commissioner, one Commissioner appointed by the Commissioner of State, and one appointed by the company. Mr. Justice Vincent was appointed Judicial Commissioner, Captain C. F. Lindell was selected by the Secretary of State, and Captain H. M. Heyman was nominated by the company. The object of the Commission was to enquire into all questions in connection with the settlement of the natives on the lands in Matabeleland. The Commission met at Bulawayo on September 15, 1894, and, after discussion, it was decided that the Judicial Commissioner and Captain Lindell should visit the country northwards in the direction of the Shangani, Babi, and Gaay Rivers. After visiting the country on and about the Shangani, Babi, Bembesi, Ukampa, and Gaay Rivers, the Commissioners returned to Bulawayo, where the Commission met on October 16, and after hearing the evidence of several native witnesses, it was decided to locate two reserves for the occupation of the natives in the neighbourhood of the Shangani and Gaay Rivers, termed the Shangani and Gaay reserves, the approximate areas being 3500 and 3000 square miles respectively. The report of the Land Commission has been approved by the Secretary of State.

## Territorial Questions.

Major Forbes has made a tour of inspection throughout the territories within the company's field of operations north of the Zambesi, which has come under the company's direct administration pursuant to the arrangements made in November, 1894, as mentioned in last year's report. The *modus vivendi* with Portugal, as regards the Barotseland boundary, has been prolonged for a further period of two years, to July 1, 1898, should the work of delimitation not be completed before that date. A convention between Her Majesty's High Commissioner for South Africa (on behalf of the British South Africa Company) and the authorities of the Orange Free State was made and entered into in August last, making provision for the mutual extradition of fugitive criminals between the territories of the British South Africa Company and those of the Orange Free State, and was embodied in a proclamation issued by the High Commissioner on August 9, 1895.

## The Stand Sales.

Sales of stands were held in Salisbury, Umtali, Bulawayo, and Gwelo in August, 1895, at which the prices realised greatly exceeded all expectations. The directors regard the result of these sales as most satisfactory evidence of confidence in the future development of the country.

The following were the figures realised:—

	Stands	Realised	£
Salisbury	450	stands realised	£ 32,025
Umtali	117	"	8,640
Bulawayo	539	"	153,312 10s.
Gwelo	111	"	9,117 10s.
	1217		£203,095 0s.

## Prospecting and Development Works.

Communications have been addressed to the Imperial Secretary at Cape Town, with a view to the removal of the restrictions placed against prospecting in the territory between the Shashi and Macloistsie Rivers. It is anticipated that the country will shortly be opened up, and the provisions of the company's mining law extended to it. During the past year the work done in the mines by subsidiary companies has been altogether confined to development, and the directors are gratified to know that most of the various companies are satisfied with the progress that has been made. The separate report gives full information from the Mining Commissioners at the various centres. Shareholders who wish to have more detailed information should apply to the secretaries of the various subsidiary companies. Since the last report of the directors was submitted to the shareholders, many development companies have been floated, thus providing further large amounts of working capital for expenditure in the development of the country. So far as the company is aware, the number of development companies at present at work in the country is approximately 200. The following particulars will be of interest:—

## The Company's Interests.

	Nominal Capital.
Gold Fields of Mashonaland (Limited) ...	£200,000
Victoria District (Mashonaland) Gold Mining Company (Limited) ...	200,000
Mashonaland (Central) Gold Mining Company (Limited) ...	200,000
Mazoe (Vesuvius) Gold Mining Company (Limited) ...	50,000
Moore's Rhodesia Concession (Limited) ...	150,000
Globe and Phoenix Gold Mining Company (Limited) ...	175,000
Clark's Consolidated (Limited) ...	240,000
Central Panhalanga Gold Mining Company (Limited) ...	130,000
Nelly and Pioneer Reefs Gold Mining Company (Limited) ...	65,000
North Charterland Exploration Company (Limited) ...	1,000,000
Salisbury Reef Gold Mining Company (Limited) ...	200,000

## Companies and Syndicates.

As to the formation of which the British South Africa Company has been informed, and in the various mining interests of which, so far as they are within the company's territories, this company has a share.

"A" Troop B. S. A. Company Police Syndicate.  
Abe Bailey's Syndicate.  
Abercorn Mashonaland Development Syndicate.  
Abercorn Reefs Syndicate.  
Adventurers' Syndicate.  
African Pioneers' Company (Absorbed Pioneers of Mashonaland).  
Anglo-French Exploration Company.  
Anglo-French Mashonaland Expedition.  
Anglo-French Matabeleland Company.  
Anglo-French Syndicate.  
Anglo-Saxon Syndicate.  
Arundel Syndicate.  
Athens Syndicate.  
"B" Troop B. S. A. Company Police Syndicate.  
Bangwaketsi Concession Company.  
Batley Syndicate.  
Bechuanaland Exploration Company.  
Bechuanaland Trading Association.  
Belingwe Development Syndicate.  
Bembesi Syndicate (Absorbed Mashonaland Belle Syndicate).  
Border Union Syndicate.  
Brand-Grey Syndicate.  
Brand Kumali Syndicate.  
Brenda Syndicate.  
British South Africa Transport and Trading Company.  
Browne-Fairbridge Syndicate.  
Bulawayo Beira Syndicate.  
Bulawayo Consolidated Gold Fields.  
Bulawayo Gold Reefs Development.  
Bulawayo Permanent Building and Investment Society.  
Bulawayo Syndicate.  
Bulawayo Waterworks Company.  
Barnham Syndicate.  
Charles Luck Syndicate.  
Charterland Consolidated (Parent Company).  
Charterland Gold Fields.  
Christmas Reef (Rhodesia) Development Company.  
Clare Estate Syndicate.  
Clyde and Tyne South African Syndicate.  
Colenbrander's Matabeleland Development Company.  
Consolidated Belingwe Development Company.  
Consolidated Gold Fields of South Africa.  
Corderoy Syndicate.  
Cosmopolitan Syndicate.  
Crescens (Matabele) Mines and Land Company.  
Croghan Prospecting Syndicate.  
"D" Troop British South Africa Company's Police Syndicate.  
Davies' Matabele Syndicate.  
Davies' Selukwe Syndicate.  
De Beers' Floor Prospecting Syndicate.  
De Beers' Syndicate, No. I.  
De Beers' Syndicate, No. II.  
"E" Troop British South Africa Company's Police Syndicate.  
"E" Troop Bulawayo Border Police Syndicate.  
Edmondson's Mashona Company.  
Enterprise Syndicate.  
Eureka Development Company.  
Exploration Company.  
Exploration Company's Syndicate.  
Exploring, Land, and Minerals Company.  
"F" Troop British South Africa Company's Police Syndicate.  
Fenner Syndicate.  
Flora Gold Mining and Development Company.  
Flora Syndicate.  
Forbes Rhodesia Syndicate.  
Frank Johnson and Company.  
French South African Development Company.  
Glasgow Mashonaland Syndicate.  
Gold Fields of Matabeleland.  
Gold Fields of Mazoe.  
Gold Fields of Zambesi.  
Gourlay's Rhodesia Development Company.  
Great "B" Gold Mining and Development Company.  
Gunders Syndicate.  
Gwanda (Rhodesia) Consolidated Developing Company.  
Gwelo (Matabeleland) Exploration and Development Company.  
Holton Lands and Minerals Company.  
Joemma Syndicate.  
Johannesburg Mashonaland Exploration Company.  
Kapp's Syndicate.  
Kumali Mashonaland Syndicate.  
La Concorde and Olty and Surburban (Matabeleland) Gold Development Company.  
La Panouse Exploring Syndicate.  
Laing's Matabeleland Syndicate.  
Leechdale Rhodesian Development Company.  
Livingstone African Exploration Company.  
Lochner Burnett Syndicate.  
Lomagunda Development Company.  
London and Bulawayo Syndicate.  
Lower Gwelo Reefs Syndicate.  
Mack Syndicate.  
MacLachlan Syndicate.  
Malalane Syndicate.  
Manhattan Syndicate.  
Manica and Mashonaland Exploring Company.  
Manica Trading Company.  
Mashona Gold Reefs and Exploration Company.  
Mashonaland Agency.  
Mashonaland Expedition Syndicate.  
Mashonaland Exploration and Trading Syndicate.  
Mashonaland Gold and Land Syndicate.  
Mashonaland Prospecting and Gold Mining Company.  
Mashonaland Trading and Exploration Company.  
Mashonaland Trust Development Syndicate.  
Mashonaland Trust and Exploration Company.  
Mashonaland Trust and Exploring Company.  
Massi Kesi Gold Mining Syndicate.  
Matabele Central Estates Company.  
Matabele Exploration and Trading Company.  
Matabele Gold Alluvial Syndicate.  
Matabele Gold Reefs and Estates Company.  
Matabeleland Adventurers.  
Matabeleland Ancient Gold Reefs.  
Matabeleland Development Company.  
Matabeleland Exploring Syndicate.  
Mazoe Development Company.  
Moonie Creek Development Company.  
Mount Darwin Syndicate.  
Mount Maggie Syndicate.  
New Gold Fields Syndicate.  
Northern Gold Fields of Mashonaland.  
Northern Territories (B.S.A.) Exploring Company.  
Officers B.S.A. Company's Chartered Police Syndicate.  
Paulet Mashonaland Syndicate.  
Pauling and Company Syndicate.  
Penhalonga Gold Mining Company.  
Percy Harvard Syndicate.  
Perseverance Syndicate.  
Phillips' Exploration Syndicate.  
Pioneers of Mashonaland.  
Fiper Syndicate.  
Premier Syndicate.  
Princes May Syndicate.  
Quartette Syndicate.  
Rand Rhodesia Exploring Company.



Beve Gold Mining Syndicate.  
Rhodesia Concessions.  
Rhodesia Exploration and Development Company.  
Rhodesia Exploration and Development Syndicate.  
Rhodesia Gold Fields.  
Rhodesia Gold Reefs (Pyrdon's).  
Rhodesia (Limited).  
Rhodesia Transvaal Syndicate.  
Rhodesian Claims.  
Rhodesian Mineral Properties.  
Rhodesian Mining and Finance Company.  
Rice Hamilton Exploration Syndicate.  
Rights and Exploring of Rhodesia.  
Ritchie's Syndicate.  
Rouchman Syndicate.  
Sabi Ophir Mining Company.  
St. Helen's Bulawayo Association.  
St. Helen's Development Syndicate.  
Salisbury Central Estates Company.  
Selous Syndicate.  
Selukwe Consolidated (Limited), Rhodesia.  
Selukwe Development Syndicate.  
Smith-Gifford Syndicate.  
South African Development Company.  
Streatham Prospecting Syndicate.  
Sultan Gold Mining and Prospecting Syndicate.  
Sybil Syndicate.  
Taylor's Matabele Gold Reefs.  
Taylor's Matabeleland Company.  
The V. V. (Gwanda) Syndicate.  
Torva Exploring Syndicate.  
Transvaal and Mashonaland Investment Company.  
Transvaal and Mashonaland Mining and Trading Syndicate.  
Trio Syndicate.  
Tarland Syndicate.  
Umfuli Gold Mining and Development Syndicate.  
Umtali Syndicate.  
Umtali Trust Syndicate.  
United Gold Fields of Manica.  
United Gold Fields of Rhodesia.  
United Matabele Claims Development Company.  
United Rhodesia Gold Fields.  
Vaughan Williams Rhodesia Development Company.  
Vincent's Rhodesia Development Company.  
Wessell's Syndicate.  
Western Maggie Syndicate.  
White's Syndicate.  
Willoughby's Consolidated Company (Absorbed Willoughby's Mashonaland Expedition Syndicate and Mashonaland Development Company).  
Woodburne Ayrshire Development Company.  
Zambesi Exploring Company.  
Zambesia Exploration Company.  
Zambesia Rand Investment Company.  
Note.—Some few of the foregoing may have amalgamated their interests.

As stated in last year's report, the delimitation of this boundary south of the Zambesi, required under the terms of the Anglo-Portuguese agreement of June 11, 1891, has been submitted to an arbitrator, Signor Vigliani, selected by the British and Portuguese Governments, who has not, however, yet issued his award.

#### Volunteers and Native Police.

With the absorption of Matabeleland and the taking over of the Northern Sphere, the company recognised the necessity of having in the country a thoroughly efficient force on which it could rely in the case of native troubles arising. It was accordingly decided to reorganise the volunteer force, and the movement has proved most popular. The force of native police was organised in the beginning of May, 1895, and is composed solely of the Matabele. The duties of the Matabeleland native police are to assist native Commissioners in the various districts in collecting hut tax, arresting deserters, branding cattle, tracing hidden cattle, procuring evidence in native cases, and police and detective work generally in connection with the natives. The actual annual cost of maintenance is stated to be about £30 a head, as against £205 a head for the white police.

#### The Balance-Sheet.

The balance-sheet for the year ending March 31, 1895, sets forth the local expenditure and revenue as distinguished from other expenditure and revenue, and gives details of the former. Since the date of the balance-sheet the share capital of the company has, by a resolution passed at an extraordinary general meeting held on June 12, 1895, been increased to £2,500,000 by the creation of 500,000 new shares of £1 each. These shares were issued at £3 10s. each (a premium of £2 10s. per share), and subscriptions guaranteed by the underwriting contract as sanctioned at the extraordinary general meeting. With the monies thus obtained the debenture debt has been paid off and all other liabilities discharged, the balance being available to forward the development of the country by directly promoting railway and other enterprise. As a result the company has, at the present time, after paying off its debentures and all other debts, a cash balance of some £600,000 in hand, and has got rid of a heavy annual charge for interest. This is altogether independent of the sums subscribed for railway construction, amounting to some £900,000, already referred to. The liabilities under this head given in the balance-sheet, amounting to £196,627, have also been discharged. The balance-sheet shows the administration expenses, direct and indirect, at £142,423, as compared with £65,766 in last year's balance-sheet. In this year's accounts £14,471 for telegraph construction is included. The very large increase on the previous year's administration expenses is due to the great increase in population, and to the fact that the figure given in last year's balance-sheet only included three months' administration in Matabeleland, as against 12 months in the present accounts. The revenue is £118,883 (including stand sales in 1894), being more than double the amount given in last year's balance-sheet—namely, £44,489. Confidence in the future development of the country is shown by the enormous success of the sales of stands held in August, 1895, which realised the sum of £203,095, and greatly exceeded the most sanguine expectations. This item, of course, is not included in the present balance-sheet, which deals only with the figures for the year ending March 31, 1895. The following table will show a comparison between the revenue received by various departments for the year ending March 31, 1894, and the year under revenue ending March 31, 1895:—

	For the 12 months ending March 31, 1894.	For the 12 months ending March 31, 1895.
Transfer duty ...	£ 624 12 3	£ 4,769 8 0
Quit rent ...	1,131 10 6	2,296 11 0
Postal revenue ..	1,682 18 4	4,609 15 0
Revenue stamps and		
License department ...	12,395 17 2	30,321 11 8
Telegraph department ...	370 7 6	3,268 16 7

**ELECTRICITY IN MINING ENGINEERING.**—The economy of electricity as a means of power in connection with mining engineering was well illustrated at a meeting some days ago, at Mason's College, Birmingham, of the South Staffordshire and East Worcestershire Institute of Mining Engineers, when Mr. L. Meachen, jun., supplemented his paper, read at a former meeting, on the new electric power plant at Haden Hill Colliery. This plant has now been at work about six months. The total cost of the installation was £2289, while a steam plant would cost £1089 less; but, on the other hand, they had the advantage of light, and a saving £73 per annum in candles, and a saving of £30 per annum in lights on the bank. Altogether there was a saving of £102 per annum. Taking other considerations into account, the result of the change was a net reduction of cost equal to 3½d. per ton, or on the output £40 per week. The cost of labour in connection with the installation was 47d. per ton.

## PROVINCIAL SHARE MARKETS.

### THE CORNISH MINE SHARE MARKET.

Mr. MICHAEL WILLIAMS BAWDEN, Mining and Assaying Offices, Liskeard, Cornwall, writes (February 27):—The mining market is without any change, and the amount of business continues very limited; prices mostly nominal. Quotations:—Blue Hills, 4s. to 5s.; Basset United, 1 to 1½; Carn Brea, 1 to 1½; Devon Consols, 20s. to 21s. 6d.; Dolcoath (fully paid), 5s. 6d. to 6s.; ditto (part paid), 4s. to 4s. 3d.; East Pool, 2½ to 3; Killifreth, 6s. to 6s. 6d.; Levant, 4 to 4½; Polbarro, 10s. to 11s. 6d.; Tincroft, 1½ to 1¾; West Kitty, 2½ to 3; Wheal Grenville, 7 to 7½; Wheal Kitty, 5s. to 6s.; C.P.; Wheal Metal, 3s. 9d. to 4s.

Messrs. ABBOTT AND WICKETT, Stock and Share Brokers and Mining Share Dealers, Redruth, write under date of February 27:—There has been rather more business this week, with a disposition to try Dolcoath, East Pools, and Tincroft, but at the low prices now being quoted sellers are shy.

### MANCHESTER.

Messrs. JOSEPH R. and W. P. BAINES, Stock and Share Brokers, Queen's Chambers, 7, Market-street, write, February 27 (noon):—The settlement still in progress, though nominally completing to-day, has interfered with fresh business, but this notwithstanding, a fair amount of business has been done during the week. With the exigencies of the account there has been some irregularity in some departments of the market. As regards rails generally, advances in values are still in majority, with, at the same time, a respectable minority of declines. The latter are, however, small in dimensions of change, and especially so as compared with the changes on the upward side. Home rails have moved within narrow limits. Variations on both sides are merely fractional, and advances are well ahead of declines. In Canadians, Pacifics quote \$1 down, and one or two Trunk issues also lower, but not more than ¼ or ½ in any case. Mexican rails have had an upward turn, the First Preference being specially good with rise of ¼, followed by ordinary 1½, and Second Preferences 1½ up. Americans show a few fractional contradictions, but, generally, better prices rule, Louisvilles taking the lead on the week, with rise of nearly \$2. Denver Preferences are \$1½. Atchison Incomes \$1, New York Central \$¾, Atchison Ordinary \$¾, and several others small fractions better. Consols show a falling away from their recent smart advance, but only of ½ on balance, though have been lower during the period under notice. Other departments, as will be seen from a glance at the details given below show most classes with alterations still upward for the most part. Bank shares are an exception, as in this class the declines just outnumber the advances. There has not been anything sufficient in the daily variations to warrant our usual diurnal form of report, so we content ourselves with the foregoing. Other details will be found hereunder:—

CONSOLS.—Lower: Two and Three-Quarter per Cent., ½. COLONIAL STOCKS, &c.—Higher: Canada Register, ½; New Zealand Inscribed, ½. Lower: Cape of Good Hope Registered, 1. CORPORATION STOCKS AND DEBENTURES.—Higher: Batley Three per Cent., ½; Blackburn Three per Cent., 1; Bradford Four per Cent., 1; Liverpool Three and a Half per Cent., ½; Manchester Four per Cent., 1½ to 1¾; Oldham Four per Cent., 1.

FOREIGNERS.—Higher: Argentine Six per Cent., 3; ditto Five per Cent., 3; Brazilian Four and a Half per Cent., 2; Mexican Six per Cent., 1; Portuguese Three per Cent., 1; Russian Four per Cent., 1; Spanish Four per Cent., ½; Uruguay Three and a Half per Cent., 1½. Lower: Italian Rentes, ¾; Turkish D., ½.

BANKS.—Higher: Adelphi, ½ to ¾; Imperial of Persia, ½; National Provincial, ½; Parr's, 1½. Lower: Consolidated, 1-16; Imperial Ottoman, ½; Oldham Joint Stock, ½; Union of Manchester, ½.

INSURANCE.—Higher: Royal, 1½; British and Foreign Marine, ½; Commercial Union, ¾; Equitable Fire, 6d.; Lancashire, 1-16; Liverpool, London, and Globe, 1; London and Lancashire; Reliance Marine, 1-16. Lower: Maritime, 1-16.

COAL, IRON, &c.—Higher: Cammells, 3; Andrew Knowles, ½ to ¾; Wigan Coal, ½. Lower: Bolckow Vaughan (£12 paid), ½ to 3-16; John Brown, 1½.

TELEGRAPHS AND TELEPHONES.—Higher: Eastern Extension, ½; National Telephone, 3-16. Lower: Anglo-American Def., ½; Telegraph Construction, 2.

BREWERS.—Higher: Allsopp's, 1 to 2; Bent's, ½; Boddington's, ½; Farnham, ½; Guinness, 10; Massey's, ½; Showell's, ½; Springwell, ½; Threlfall's, ½.

MISCELLANEOUS.—Higher: Armitage's, ½; Bell's Asbestos, 1-16 to ½; Brooke Bonds, ½; Cawthra's, ½; Chadwick's, ½; Coat's, ½; Henry's, ½; Howard and Ballough, ½ to 1; Manchester Carriage B., 1; Pacific Steam, ½; Roston Proctor, ½; United Alkali, ½ to 3-16; West India and Pacific Steam, 1½; Gas Light A., 6. Lower: Brunner Mond, ½; Bryant and May, ½; Canard Steam, ½; Household Stores, 1-16; Kellner Partington, 1-16; Salt Union, ½; Sir J. Whitworth's, Manchester Trast, 2s. 6d.; Ship Canal Ordinary, 1-16 to ½; ditto, Preference, ½.

LATER (4 P.M.).—Home rails still on the upward tack for the most part. Americans and Canadians easier. Bolckow Vaughan dividend, though 3 per cent. against 2½ per cent. and with a bigger amount forward, was taken as disappointing hopes, and sellers appeared to realise recent rise.

### SCOTCH MINING AND INDUSTRIAL COMPANIES SHARE MARKETS.

STIRLING.—Mr. J. GRANT MACLEAN, Stockbroker and Ironbroker (February 27), writes:—During the past week business has not been very active, but prices are firm on satisfactory trade prospects and demand for investment.

In shares of coal, iron, and steel companies there has not been much business doing. Cairntrale Gas Coal wanted. Bolckow Vaughan are 16½, Marbella 45s., Niddrie 42s. 6d., and Steel Company of Scotland 96s.

In shares of copper concerns a fair amount of business has been done. Prices are higher in sympathy with the market for the metal. Arizona have improved to 47s. 6d. ex div., and Tinto to 19. Tharsis are at 5-16, and Anaconda 6 13-16.

In shares of gold and silver mines there has been less business doing. The rates of continuation to the new account, March 12, were, although in some cases a little heavier, not generally stiff. Notwithstanding the issue of the Chartered report, the fluctuations in the leading shares—Chartered, Consolidated Gold Fields, East Rand, and Randfontein—have been moderate. West Australian shares have been attracting more attention, and some of them, such as Associated, Golden Plum, and Menzies O'Driscoll, show good advances. One 1 share offered. Indian mines have also improved, owing to the satisfactory dividends announced by Mysore and Nundydroog, and the expectation that Mysore West will soon commence to pay dividends. Afrikaner are at 27s. 6d.; African Recovery, 35s.; Achilles, 3s. 3d.; Anglo-French, 92s. 6d.; African Estates, 48s. 9d.; Brilliant O.T., 18s.; Broken Hill Proprietary, 53s.; Bayley's West Extended, 10s.; Bonanza, 55s.; Blue Spur, 10s.; Big Blow, 11s. 3d.; Balkis Land, 7s.; Blagrove, 5s.; Croesus, 35s. 9d.; Charterland, 20s.; Cassel, 7s.; Colorado Silver, 5s.; Coetzestroom, 7s.; Don Pedro, 1s.; Eastleigh, 24s. 3d.; Gold Coast Development, 3s. 6d. to 4s.; Gold Fields of Mysore, 22s. 3d.; Graskop, 6s. 3d.; Geldenhuys Main, 25s.; Hampton Gold Hills, 2s.; Hit or Miss, 33s. 9d.; Hammond's Matabele, 5s. 6d.; Jackson, 1s.; Jubilee Consols, 3s.; Komata Reef, 5s.; Kathleen, 3s. 9d.; Limerick, 26s. 3d.; Lion, 10s. 6d.; Leipgaard's Vlei, 26s. 3d.; Mysore Harshall, 1s. 3d.; Marchion New Chum, 12s.; Mallins, 4s. 6d.; Mashonaland Central, 26s. 3d.; Noltaykop, 2s. 3d.; New Gaston, 4s.; Otto's Kopje, 1s. 6d.; Orion, 55s. 9d.; Orient, 8s. 6d.; Oceana,

42s.; Ophir, 4s.; Oaro Preto, 26s.; Royal Oak, 3s. 3d.; Rhodesian Mining and Finance, 35s.; Rhodesia (Limited), 15s. prem.; Scotty's Hauraki, 3s. 6d.; Sam's Wealth of Nations, 3s. 6d.; Sheba Queen, 4s. 9d.; St. Augustine, 12s.; Spes Bona, 32s. 6d.; Tiger, 9s. 3d.; Torva Exploring, 25s.; United African Lands, 8s.; United Rhodesia, 23s.; Vaughan Williams Rhodesia, par; Wentworth, 21s. 3d.; West Australian Mining, 10s.; and Westleigh, 7s. to 9s.

In shares of miscellaneous companies there is not much alteration to notice. Oil companies' shares are steadier, as the dividend prospects are considered a little better. Broxburn are at 10½, Pumphreton 7, and Young's Oil 30s. 6d. Killaloe Slate are at 11s. 9d., and Nobel's Explosives 15½.

### EDINBURGH.

Messrs. THOMAS MILLER and SONS, Stock and Share Brokers, 69, Hanover-street, Edinburgh, report as follows under date of February 27:—Since last week's report the Glasgow and South-Western Railway dividend has been announced at the rate of 5 per cent. per annum, as against 2½ a year ago. The price has risen from 120½ to 125, and the deferred stock has advanced from 16½ to 17½. The Great North of Scotland has also been announced—3½, as against 3½ per cent. per annum, and the quotation, which had advanced to 117, has receded to 115½. Caledonian deferred has changed from 56 9-16 to 57½, Highland from 108½ to 111½, North British from 47½ to 47½, ditto Deferred Ordinary from 90½ to 91. In insurance shares, Northern have improved from 71 to 72, Standard Life from 66½ to 66½, Caledonian from 27½ to 27½, Scottish Union A have declined from 88s. 6d. to 87s. 9d., Bank of Scotland has risen from 348½ to 350, Caledonian Bank from 88s. to 91s. 3d., Arnoton Coal shares have gone down from 25 to 24½, Cowdenheath Coal from 17 5-16 to 16½, Steel Company of Scotland have risen from 95s. 6d. to 95s. 9d., Broxburn Oil have declined from 10½ to 10, Pumphreton Oil from 7½ to 6½.

## MINING IN CORNWALL AND DEVON:

### NOTES ON MINING IN THE WEST.

(FROM OUR SPECIAL CORRESPONDENT.)

A SLIGHTLY improved tone is perceptible in the Cornish Mine Share Market this week, and though business is, of course, very quiet, the panic that at one time prevailed seems to have passed away, and there is no longer any disposition to give away shares. Mr. C. V. Thomas is still at work on the scheme to start Carn Brea and Tincroft as a Limited Liability company, and is understood to have met with a fair measure of success. The action of Lord Robartes, Mr. Bolitho, M.P., and other leading men, has done much to inspire confidence, and if a few more influential supporters can be secured in the county, the undertaking will be safely launched. It is understood that the new company will not be heavily capitalised, and the value put upon the properties will be anything but an extravagant one. The cessation of calls will be something to be thankful for in these times, for the strain at Carn Brea in particular had become intolerable.

THE future of Wheal Agar is as yet uncertain. Mr. Strauss, M.P., is said to have received replies from a majority of the shareholders favouring amalgamation, and Mr. Hattersley, the Chairman and largest shareholder, seems to incline towards a scheme for working the mine in conjunction with the adjoining sett of South Tolgus, which was rich for copper, and is confidently believed to be equally rich for tin. This venture would, of course, be a very speculative one, and Wheal Agar's record during the last few years has hardly been an encouraging one.

ALTHOUGH West Frances shareholders at the recent meeting agreed to a resolution deciding to wind up the affairs of the mine, it is not likely that the sett will be entirely abandoned. It has two great neighbours, Wheal Grenville and Basset United, both of which would be inconvenienced by its closing down, and it is quite on the cards that the difficulty may be settled by the division of West Frances between them. It is to be feared, however, that in no case could employment be found for the majority of the hands in the service of the old Cost-book company.

Two well-known mining men, Captain James and Mr. N. Trestrail, C.E., have recently returned to Cornwall from a tour of inspection in South Wales and Germany. They assert that Cornwall, so far as they can see, is not so far behind the rest of the world as it is now the fashion to assert, though they admit that there are things "made in Germany" which might be adopted in the Cornish mines with advantage. It is possible that this tour may bear fruit at Basset later on, for the directorate is an enlightened and progressive one, eager to introduce all improvements, the efficiency of which has been put beyond question.

THE committee appointed to consider the conversion of Killifreth Mine into a Limited company has been strengthened by the addition of Messrs. F. Bain, S. J. Davey, Allen, and Williams. It is believed that the points at issue will speedily be settled, and a satisfactory scheme laid before the adventurers. This is emphatically one of those cases where delay is dangerous.

THERE would appear to be some prospects of revival at those mines which are large producers of arsenical mudic. At a sale of ore raised by Prince of Wales Mine the price realised was about 22s. per ton, the bulk of the stuff going to a firm in Swansea, where preparations are being made for the manufacture of arsenic on a very large scale; the prices offered were some 7s. per ton more than those given by buyers in the county. There are several mines in the western part of Cornwall which are large producers of arsenic, East Pool and Levant being among them.

COAL IN THE DUTCH EAST INDIES.—The minerals, the working of which have hitherto shown the best results in the Netherlands East Indies, would seem to be coal and petroleum, though gold is sometimes found, and occasionally diamonds. With regard to coal in Sumatra, the Ombiliën mines belonging to the Crown already show promising results in spite of numberless engineering and other difficulties. 47,833 tons were produced in 1893, an amount which was increased to 72,451 tons in 1894 in spite of a lack of labour which prevented the total from attaining to the estimated result of 100,000 tons. About 20,000 tons were loaded at Emmahaven, bound for Java, where it fetched a price of from 13 to 14 florins per ton. The working of these mines has been frequently interrupted by fire, and the loss in 1893 was so considerable that it is said in the near future coal mining will be to a large extent abandoned, its place being taken by coffee planting. The mines are for the most part worked by convicts, who numbered 1227 in January, 1894, as against 350 in January, 1893. Failing this form of labour, coolies are resorted to, and these likewise are skilful workmen.



## SOUTH AUSTRALIAN LETTER.

(FROM OUR OWN CORRESPONDENT.)

ADELAIDE, JANUARY 22.

It is to be hoped that while the great gold mining boom is on some attention will be paid to the mines of this colony, which, if not so sensationally rich as some of those in West Australia are said to be, yet possess many advantages which the others do not. We can work many of our mines here at a cost of only 5 dwts. of gold per ton, while in the Western Colony, to state the case mildly, probably 25 to 30 dwts. would be the average cost for working expenses. Our mines are generally much more easily accessible, and water is far more readily procurable, as well as most of the necessities of life, many of which, as vegetables and fruit, are regarded as luxuries in the West. A mine manager from West Australia said to me the other day—"I know of a dozen reefs within 20 miles of Adelaide, that would yield an ounce of gold to the ton, but people will not believe it—no, West Australia is absorbing all the interest, and the money, too—and there am I working a reef in the West for an Adelaide Company, and it only yields half an ounce to the ton." Nevertheless, it cannot be denied that the West Australian gold fields have largely developed during the past 12 months, and it is more certain now that there is a very large amount of gold to be found there, but it is generally admitted that the cost of winning it will be, at any rate for some time to come, five times as great as in South Australia. We in this colony have lately witnessed some grand discoveries of highly payable gold reefs at Echunga, at Blumberg, at Barossa, Wadnaminga, Nackara, Paratoo, Talbabboka, Nillinghoo, New Luxemburg, &c. I am well acquainted with all the localities, and am perfectly certain that the mines there could be worked at a profit with one-fourth or one-fifth of the capital considered necessary to work mines of the same extent in West Australia. It is a matter of surprise and regret to many practical men that so many promising gold mines here are neglected when it is evident that they could to an absolute certainty be profitably worked. It is the old idea expressed in the words—"A prophet is not without honour save in his own country." The Western Colony affords more excitement, consequently there is more active speculation or share-gambling, and, as in every other kind of gambling, men will risk the chance of losing in the hope of making a "big pot." But for genuine legitimate mining I would rather invest in an equal number of South Australian mines than of West Australian—barring, perhaps, a dozen of their best. If our profits do not exceed (say) 10 to 15 per cent. they are likely to be certain, and our losses are not likely to be of any consequence—always providing good management, both practical and financial. In most cases the amount of capital required for plant and machinery would be moderate, and with the excellent processes now available for saving the gold—many of them local inventions—the returns would be much higher than heretofore. The Old Reedy Creek Mine is said to pay expenses on a return of only 3 dwts. of gold per ton, so that 5 dwts. per ton should be a fairly liberal allowance for the working cost of most of our mines. The average produce of the mines named above should be fully 1 ounce of gold to the ton of veinstone. Some of them would certainly give 2 ounces, and a few still higher returns. Some rich stone has lately been struck at the depth of 30 feet in Hamlin's Freehold, Barossa, about 30 miles north of Adelaide, and near the Lady Alice Mine. In the same neighbourhood a recent discovery, called the Lady Pearce, looks very promising. Other adjacent auriferous ground is also being satisfactorily developed.

At the Queen Bee Mine, New Luxemburg, the machinery is being erected, and will probably start work in March on the 1500 tons of auriferous copper ore now at grass, while the working of the mine will be more actively carried on, so as to keep the machinery constantly employed. The 1500 tons of ore will probably average 17 or 18 per cent. of copper, and 8 to 10 dwts. of gold per ton, at a low estimate. Much richer stone can be raised from the present workings, as higher returns of gold have been obtained. When this mine gets into full work, which should be in about two months more, it is expected that dividends will shortly after be forthcoming. The underground workings are all in excellent order.

On Mr. Patrick Hynes' land, near Blumberg, further rich discoveries have lately been made, showing gold at the rate of several ounces per ton. At Wadnaminga the old original mine is being worked with fresh energy, as a very rich shoot of gold has been opened for 25 feet in width, at the depth of about 50 feet. A boom is confidently expected this year in South Australian gold mining, and if everybody knew as much as I do about the buried wealth in South Australia, there would be one of the biggest booms we have ever experienced. Since writing the above a practical miner has come to me with some magnificent specimens of gold in pure quartz, and offers to take me to the *locus in quo* tomorrow. Another party having engaged my professional services to report on the find, we start in the morning for a pleasant drive of about 30 miles among the eastern hills. Another rich discovery has been reported and is quite correct, but the locality is a secret.

The mines at Paratoo and Nackara are being developed in a most satisfactory manner. The lode shows decided improvement in depth, and is fairly proved for nearly  $\frac{1}{2}$  a mile in length to the depth of 100 feet, and more in places.

A new discovery is announced at Nillinghoo adjoining Kerkeek's Treasure, fine gold being seen in the stone. In excavating the foundation for the boiler on Kerkeek's Treasure Mine a fine gold-bearing vein 18 inches thick was cut. Such things as the above, if in West Australia, would be telegraphed all over the world, but we South Australians pay rather too much attention to Anthony Trollope's advice, "Don't blow." If we did a little more "blowing" we might be thought more of.

THE STYRIAN IRON INDUSTRY.—A report from the British Embassy in Vienna, prepared in reply to a request from Lord Salisbury, deals with the iron industry of Styria. Up to 1874-75 the Styrian iron furnaces were worked with charcoal only, but now, in consequence of the heavy fall in prices in recent years, and the introduction of improved methods, most of the furnaces in Styria and Carinthia are worked exclusively with coal or coke, a few with a mixture of coal and charcoal, and a few with charcoal only. The ore used in Styria is carbonate of iron, containing, after calcination, 50 to 53 per cent. of iron, and 1 to  $1\frac{1}{2}$  per cent. of manganese, very little phosphorus or sulphur, and no copper. The charcoal furnaces produce all kinds of pig iron for making malleable iron, high grade steel, or specially strong foundry work. The blast furnaces for charcoal are generally of rather small capacity, and drawings of some of the best working furnaces are added to the report to show the characteristic features of the Styrian charcoal furnaces, as compared with those in use in America and Sweden. They are worked with closed tops and gas flues for raising steam and heating the blast with the waste gases. Where water-power is employed for working the blast engines the waste gases suffice to heat the blast, calcine the ores, and, in some cases, to raise the steam for other purposes. Iron tube

stoves are used exclusively to heat the blast, and the temperature obtained is from 500° to 800° F. The "charge" is from 0.2 to 0.3 tons of charcoal, and 0.4 to 0.6 tons of ore; the latter does not want any limestone for flux, but sometimes 2 to 3 per cent. of silica. The wood generally used for making charcoal is fir or beech, 4 tons of wood being consumed in producing 1 ton of charcoal. The latter is made in open heaps, not in kilns, and is brought to the ore, and not the ore to the charcoal. The charcoal made from soft wood is obtained in the vicinity of the iron works, or not more than 50 miles from it, whereas the hard charcoal made from beech is sometimes brought from a distance of 100 to 200 miles.—*The Times*.

## WANTED.

\*. Prepaid Advertisements are inserted in this column at the rate of 8d. per line, with a minimum charge of 4s.

**MINING AND CIVIL ENGINEER**, age 45, with experience in West Australia, is OPEN to an APPOINTMENT. Satisfactory references. Address "LUBRA," MINING JOURNAL Office, 18, Finch Lane, London, E.C.

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**MANAGER WANTED** for West Australia Gold Mine, now running 10 stamps; will shortly be running 20. Address, stating salary, experience, with copies of testimonials, to "M. G. K.," care of Messrs. STREET'S, 30, Cornhill, E.C.

## LARGE STEENCOAL PITS IN CHILE

Could be worked on favourable conditions. Particulars with H. HASELOFF, care of A. F. NEUMANN, Berlin, S.W. 19; or with W. RIEGER, Valdivia, Chile.

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## FIFESHIRE.

## MINERALS TO LET.

**TO LET on LEASE**, with entry at Whit Sunday, first the WHOLE SEAMS of Blackband and Clay Band Ironstone, Gas Coal, Common Coal, Oil Shales, Fire Clay, and other Minerals in the lands of Easter Crosshill, in the County of Fife. The lands lie on the east side of the road leading from Navty to Lochgelly, and about  $1\frac{1}{2}$  mile from Lochgelly Railway Station. A cottage and several workmen's houses will be let along with the minerals. For further particulars, apply to OLIPHANT and JACKSON, Solicitors, 128, Hope Street, Glasgow. Glasgow, 19th February, 1896.

## SHIPPING.

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Steamers.	London.	Southampton.
Methven Castle (via Canaries) ...	Mar. 3	Mar. 7
Granville Castle (via Madeira) ...	Mar. 6	Mar. 10
Lismore Castle (via Canaries) ...	Mar. 13	Mar. 14
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Return tickets to all Ports.

Free Tickets by Castle Express from Waterloo to Southampton. Apply to DONALD CURRIE and Co., 3, Fenchurch Street, London, E.C. West End Agency, THOS. COOK AND SON, 13, Cookspur Street.

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Steamers.	Antwerp.	Rotterdam.	Hamburg.	Southampton.
Guelph (to S.W.) ...	Feb. 23	—	Feb. 29	Mar. 7
Mexican ...	—	Mar. 8	Mar. 14	Mar. 14
Goth (to S.W.) ...	—	—	—	Mar. 21
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Extracts and Notes from Mining Operations and Reports on these during the past 25 years.

By WILLIAM GUTHRIE BOWIE.

(Continued from page 256.)

## Treatment in Situ.

WHEN we consider the products obtained by the use of this pyrites in England and elsewhere, and seeing its abundance here, as well as abundance of manganese, salt, lime, and even potassium nitrate, the question may be asked why these products cannot be equally as well and even more economically produced *in situ*. So far, only Rio Tinto has assayed to do so in respect of sulphuric acid and sulphate of copper, and no one has yet succeeded in establishing manufactories for metals or alkalies in any of these mines, on a basis economical and perfect enough in quality, to be able to compete with such in England, France, or Germany.

Reference has been made to the ancient methods of treatment *in situ*, and, apparently, since the revival of mining, every known method, "dry" or "wet," has also been tested in these mines, in order to separate the copper and other metals from their ores. The English method of smelting with its ten processes, that called the Mansfeld and Continental, with their nine changes, have all been proved. Smelting for matte and coarse copper has had its day, also the "wet way," first noticed in 1546 by Agricola in the mines in Hungary, and that used to treat the ores of Siegen on the Rhine, while that of Bacchi and Haupt, used in Tuscany, and particularly the Agordo plan, have been followed up for many years, as well as the same plan followed in Norway, and at the present day these two last still are followed together with the old plans carried out in the old mines of Alnwick, near Anglesea, and those in Wicklow, in Ireland, and those anciently observed in Schmolnitz in Hungary, by flooding the mines with water to wash out the copper sulphates formed by exposure to atmospheric agencies, and precipitating the same from solution by the use of iron, while the same plan is adopted by exposing the ores extracted to these agencies, and treating in the same way, with water and iron, which is the process by which most of the copper is produced here.

While the kernels from the roasted ores, and the cement copper from the liquors, have in turn together with rich copper ores, been smelted for matte, coarse copper, rosette copper, &c., but now all abandoned, the copper precipitate is shipped to the smelters in England and other parts in bags.

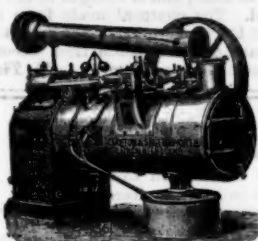
Many other processes have also been introduced, but never tested in a proper manner, such as those of Napier, Rivot and Phillips, Bankart, Claudet, Escalle, Habner, Henderson, Birkmyre, Gossage, Longmaid, Hallway, Doetsch, and American methods in blast furnaces, and modifications of all these, and now electrolytic processes are being tested.

All these have mostly been tested in the rudest of manners and with the most inadequate means, as well as knowledge of chemistry or of metallurgy, hence none have succeeded. Let the rudest sketches of ancient smithies and foundries be brought to mind, or the hieroglyphic representations of these as worked by the Egyptians or ancient Mexicans, and some slight idea of the ways and means in use in metallurgical operations in these mines up to a few years ago can be arrived at. It is only some few years since all kinds of skins and bellows were in use in smelting, and motion given to these by gangs of men and boys drilled to walk from one end to the other of a gangway balanced on a pivot in its centre, and numerous other such make-shifts as are to be seen in African villages, and adopted by the rudest of African or Indian metallurgists, and even to-day all have had to fall back on the simple processes of Linz, Scholnitz, Alnwick, and Wicklow, followed by others nearly 400 years ago. While in a new land, then altogether unknown, it is where, with all the struggles of colonisation, that improvements in metallurgy have advanced. (See Mr. J. Douglas's lectures on "American Metallurgy" to Society of Arts, in *The Mining Journal* of April and May, 1895.) Thus the whole processes here are for copper, and this is obtained by calcination of the ore in the open air to drive off the sulphur, and try to form sulphates of copper, or by exposing the ore to atmospheric agencies in the raw state, or by flooding the mines with water for the sulphates, and these are precipitated by the use of iron as cement copper. For a description of these processes see Perry, Phillips, Mitchell, Greenwood, Lamborn, and the many authors available in England, and in particular the works of Mr. J. H. Collins on Rio Tinto, and of Mr. Deby on the same, or see *The Mining Journal* as to opinions of Mr. Collins, November, 1893, page 1307. As so many able authors are available no description of these processes will be necessary here, and hence we may proceed to examine the expenses, first of the calcination of the ore, and precipitation of the sulphates formed; and second, the treatment by "exposure" in the natural state, and precipitation of the sulphates formed, these being the only two processes in use, for while Rio Tinto treat for sulphuric acid and copper sulphate, and have tested other methods, yet these are of no importance up to date as producers of copper, or benefits to the company.

1st. Calcination of the ore and precipitation of the sulphates. This process has been a much debated one, and it will appear strange no one can give a thorough scientific reason why adopted or its use continued up to date. There appears to be more caprice than otherwise in continuing its use, and while it has been most justly qualified as the "most inadequate and barbarian" process possible to adopt whereby to reduce the copper in this ore to sulphate of this, by the ablest of engineers and metallurgists, including the expert who inspected Rio Tinto in the interest of this company, previous to their purchasing this property, and it is only lately that mining managers are abandoning the same after all their endeavours to prove the impossibility to treat this ore otherwise, and use every political means to be allowed to continue it, together with the unjust abuse and boycotting they considered convenient to apply to others, who clearly proved its inadequacy, and both recommended and applied in practice other processes, which now at last they are also adopting.

(To be continued.)

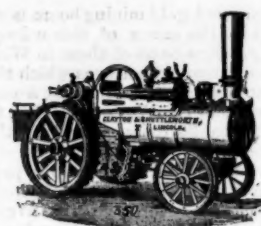
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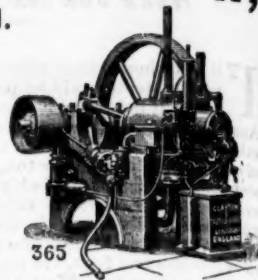
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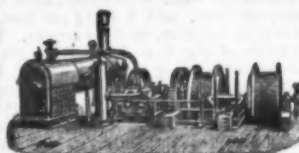
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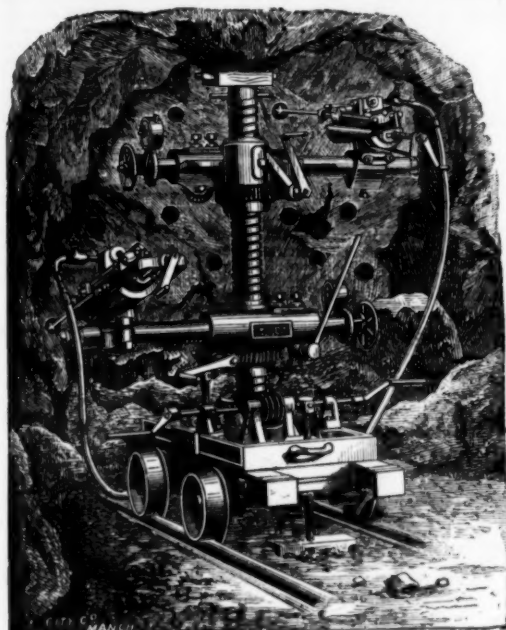


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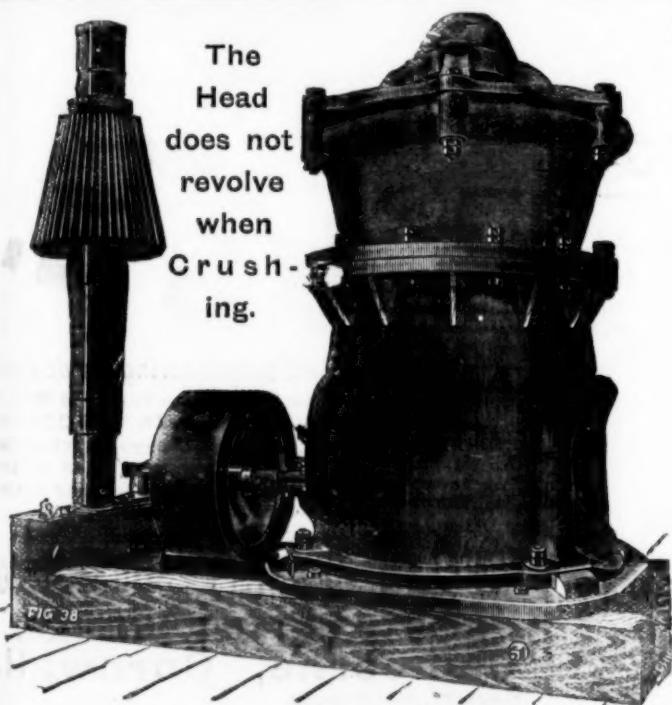
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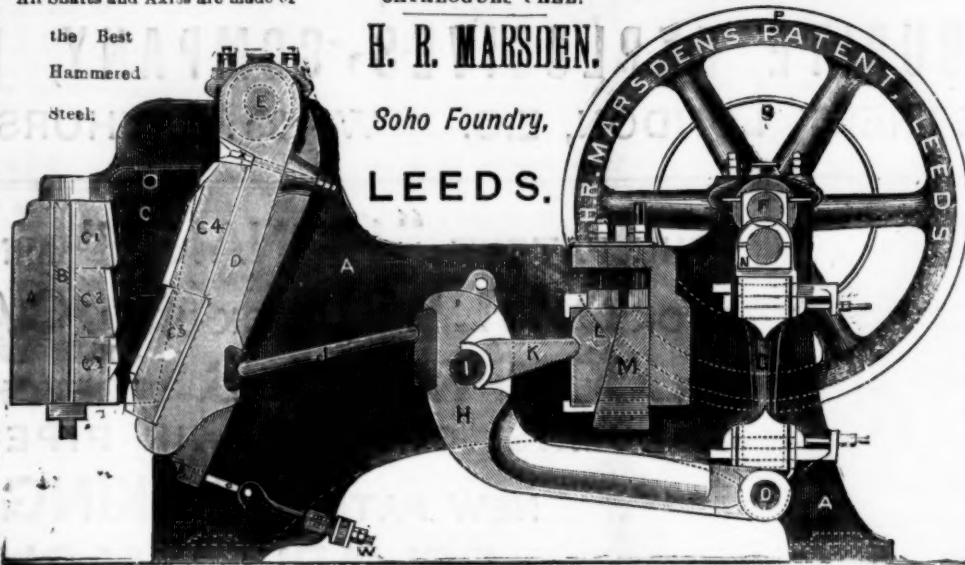
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"I now order three of your Stone Crushers, 15 by 10, to be of your very best construction, and to include two extra sets of Jaws and Chucks for wear. The last two 24 x 13 machines you sent me, which are at work in this colony, are doing very well. You soon find that the railway contractors will adopt your machines in preference to the colonial ones—two of which I have. I know other contractors have had many as nine of them, which have not given very good satisfaction. Once they know of your thoroughness, I believe you will do a good trade with the colonies. For reference of the high character of your constructions you can refer to me as having used them with the very best results, both in New Zealand and this colony, and much prefer them to the colonial article, both in point of construction and liability to go out of order. The material we are crushing is very hard blue stone, for railway ballast purposes. Push on with the order as quickly as possible. I do not think it necessary to have any engineer's inspection. I have brought your machines prominently under the notice of all large contractors in this colony, likewise the Government. Many of the contractors have spoken to me in reference to their capabilities, and it could only tell them that they are by far and away the best and most economical I ever used. The very fact of me having purchased several from you at various intervals and various sizes, and two above 12 years ago, and having tried all the other makers is sufficient guarantee of the capabilities and the working of your machines. Yours in every way surpass all others."

From His Grace the Duke of Rutland,  
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From the Earl of Harrington,  
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SIR,—Elliman's Royal Embrocation is used in my stables, and I consider it the best that I can obtain.

HARRINGTON,  
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From Major M. J. Balfe,  
South Park,  
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M. J. BALFE,  
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HADDINGTON,  
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From R. Burdon Sanderson, Esq., Warren House, Belford,  
July 10th, 1892.

SIR,—Elliman's Royal Embrocation is used in my stables and I consider it very useful.

R. BURDON SANDERSON,  
Master of Percy Foxhounds.

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July 16th, 1892.

DEAR SIR,—I have much pleasure in recommending your Royal Embrocation. I always keep a stock in my stables and kennels. My farm bailiff has also found it of much value among my herd.

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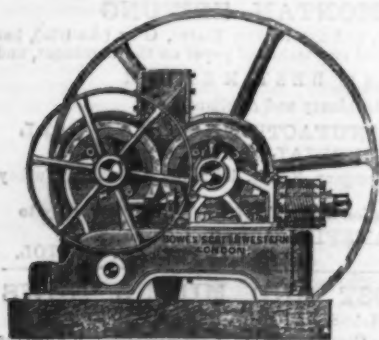
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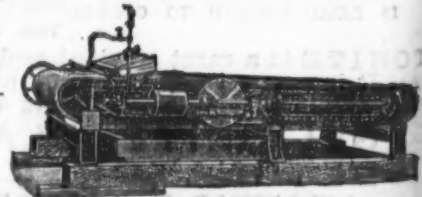
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